

	<p style="text-align: center;">REQUEST FOR PROPOSAL</p>	<p>Please quote on the commodities or services listed below. All prices must be FOB Destination. You must show unit price, amount and total or bid may be rejected. The State of Connecticut is exempt from payment of Federal Excise taxes and the Connecticut Sales Tax. Do not include such taxes in bid prices. WCSU reserves the right to reject in whole or part any or all bids submitted.</p>	
<p>VENDOR NAME , ADDRESS and EMAIL ADDRESS:</p>		<p>BID NUMBER: 2016-ERB-0321</p>	<p>BID DUE DATE: Oct. 18 2016 by 2:30pm</p>
<p>RETURN TO: Western Connecticut State University Purchasing Department 181 White Street Danbury, CT 06810</p>		<p>DATE ISSUED:  September 20, 2016</p>	
<p>SIGNED (for agency)  E.R. Boriss</p>	<p>PREPARED BY: E.R Boriss Associate Director – Administrative Services Phone: (203) 837-8758 Fax: (203) 837-8659</p>		<p>PURCHASING AUTHORITY: Public Acts 91-256/92-154 CGS 10a-151b</p>
<p style="text-align: center;"><b>Description</b></p>			
<p>Western Connecticut State University is seeking bid proposals for all labor and materials required to provide IT upgrades to the existing residence apartments/rooms and Wireless Access Points (WAPs) structured cabling system at Western Connecticut State University's Litchfield Residence Hall, located in Danbury, CT. Existing cable raceways in the apartments shall be demolished and new cable raceways shall be installed to accommodate Category 6 UTP cable. The project includes the addition of outlets to two (2) existing Telecom Rooms on the 2nd floor of Litchfield Hall. Existing equipment racks will be used for additional patch panels to support the additional outlets. <b><u>Please note: The CT Dept. of Labor's Prevailing Wage Rates shall apply to this project.</u></b></p> <p>In our continuing effort to assist in the economic development of Connecticut's small and minority business enterprises, this Invitation to Bid is reserved for vendors holding a current SBE/MBE set-aside certificate from the State of Connecticut Department of Administrative Services (DAS) Supplier Diversity (Set-Aside) Program. Please note, set-aside certificates that will have expired prior to the bid opening date, but are pending recertification approval by the DAS, do not qualify.</p> <p>All contractors are required to visit the site and verify existing conditions. <b><u>A mandatory pre-bid meeting is scheduled for Tuesday September 27, at 10:30 a.m.</u></b>, beginning in room 202A at the Midtown Student Center on the Midtown Campus. <a href="http://www.wcsu.edu/campustour/directions.asp">http://www.wcsu.edu/campustour/directions.asp</a></p> <p>The project manual and project related drawings shall be available on the State of Ct. DAS contracting portal prior to the walk through date. Reference Bid 2016-ERB-0321</p> <p>All work shall commence within one week of issuance of contract or letter of intent. All work must be coordinated with the University's construction administrator and the general contractor of record for the Litchfield Hall major renovations project; all work must be completed no later than May 26,</p> <p><b><u>The contractor who is selected to perform this state project must file and receive an approved Affirmative Action Plan by the Commission on Human Rights and Opportunities.</u></b></p> <p><b><u>This project is subject to the State SET ASIDE goals and NEW STATUTORY CHANGES TO4a-60g effective 10/1/13, as it relates to new self- performance and subcontracting requirements.</u></b></p>			

<p style="text-align: center;"><b>TO BE COMPLETED BY BIDDER</b></p>	Vendor Authorized Signature _____ Date _____ Printed Name _____ Phone _____ Extension _____ Cash discount Payment Terms _____% _____ days, net 30 days Company FEIN _____	
	<b>REQUEST FOR PROPOSAL</b>	Please quote on the commodities or services listed below. All prices must be FOB Destination. You must show unit price, amount and total or bid may be rejected. The State of Connecticut is exempt from payment of Federal Excise taxes and the Connecticut Sales Tax. Do not include such taxes in bid prices. WCSU reserves the right to reject in whole or part any or all bids submitted.
	This is NOT an order to ship.	
<b>VENDOR NAME, ADDRESS AND PROJECT CONTACT EMAIL ADDRESS:</b>		<b>BID #</b>  2017- ERB- 0321
Return to: Western Connecticut State University Purchasing Department 181 White Street Danbury, CT. 06810  <hr/> The contractor selected to perform this state project needs to solicit multiple bids per subcontract (class of work) from an assorted variety of subcontractors, non-trade related service providers, ethnic minority, woman, certified by State of CT. Dept. of Administrative Services Supplier Diversity Program (DAS). (set-aside).  Please note the following <b><u>NEW STATUTORY CHANGES TO 4a-60g effective October 1, 2013</u></b> as it relates to <b><u>Self-Performance &amp; Subcontracting Requirements.</u></b>  P.A. 13-304 increases the percentages of work required to be performed by any prime SBE/MBE company that is awarded a contract under the set-aside statutes. Previously, a company awarded a set-aside contract was required to self-perform at least 15% of such contract; it will now be required to self-perform at least 30%. Further, SBEs and MBEs that subcontract some of the work under their set-aside contracts will be required to subcontract at least 50% of the remaining work (i.e. the work not self-performed by the prime) to SBEs and MBEs, respectively, instead of 25%, under current law. Please note that the 50% requirement applies to the work subcontracted; in other words, the percentage to be self-performed by the prime contractor cannot be used to accomplish the 50% requirement.  Example: If an SBE is awarded a \$100,000 state contract under the set-aside statutes, that SBE will be required to perform at least \$30,000 of the work under the contract with its own workforce. If the SBE self performs \$30,000 of the Work, and chooses to subcontract the remainder, the SBE must subcontract at least \$35,000 of the work to another Certified SBE (50% of the remaining \$70,000 on the contract).  <b><u>The SBE/MBE requirement is still 25% of the entire bid total with 6.25% required for an MBE contractor.</u></b>  <b><u>FORM OF PROPOSAL SET ASIDE WORKSHEET MUST BE SUBMITTED WITH THE BID PACKAGE</u></b>		<b>PAGE</b> 2

**Bid Parameters 2016-ERB-321**

Compliance with Western Connecticut State University Bid Submission forms located in the specification package must be completed and submitted with the proposal.

**SBE, Small Business /MBE,Minority Business Enterprise Requirements: Set Aside Form of Proposal and Set Aside Certifications for all subcontractors MUST BE SUBMITTED WITH THE BID PACKAGE.**

**Proposers shall submit a clearly marked original and (1) one copy of the proposal.**

Submitted Bid pricing must be held for a period of 90 calendar days following the date of bid opening.

Note that this is a sealed bid. Late bids, e-mailed bids, faxed bids, or unsealed bids will not be accepted. Please note the sealed bid number **2017-ERB-0321** on the exterior of the sealed envelope so that proper identification of the proposal can be made.

**Sealed bid opening is October18, 2016 at 2:30pm** in the Purchasing Office of Western Connecticut State University, located on the lower level of University Hall, 181 White St., Danbury, CT. 06810.

Note that Western Connecticut State University reserves the right to reject any and all solicitations and to order or to not order any and all goods or services in this solicitation.

Bids are to be based on the work called for on the sketches and specifications for the subject project, as well as any addenda issued during the bid process. Bids showing informalities, qualifications or conditions may be rejected at the option of the University. Each bidder must note receipt of any Addenda or bulletins when submitting a bid. All bidders shall verify dimensions and conditions at the site and be responsible for satisfying himself as to all requirements of the contract.

Bids must be held for a period of 90 calendar days following the date of the bid opening. Following 90 calendar days, if attempted negotiations with the lowest bidder fail to result in a contract, the University reserves the right to re-bid the project.

To be completed by bidder

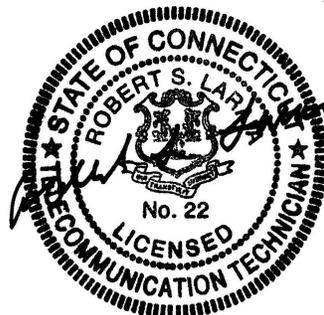
Vendor Authorized Signature \_\_\_\_\_ Date \_\_\_\_\_

**PROJECT MANUAL**  
**FOR**  
**LITCHFIELD RESIDENCE HALL IT INFRASTRUCTURE UPGRADES**  
**DCS PROJECT NO. BI-RD 291**  
**MIDTOWN CAMPUS**  
**SEPTEMBER 12, 2016**

**BID NO. 2017-ERB-0321**



**FACILITIES PLANNING & ENGINEERING**  
**WESTERN CONNECTICUT STATE UNIVERSITY**  
**181 WHITE STREET**  
**DANBURY, CONNECTICUT 06810**



BID NO. 2017-ERB-0321



# LITCHFIELD RESIDENCE HALL IT INFRASTRUCTURE UPGRADES MIDTOWN CAMPUS

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C-1	Cover Sheet	9/12/16
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**INVITATION TO BID  
BID NO. 2017-ERB-0321**

Notice is hereby given that **WESTERN CONNECTICUT STATE UNIVERSITY** will accept bids for the following:  
**LITCHFIELD RESIDENCE HALL IT INFRASTRUCTURE UPGRADES – MIDTOWN CAMPUS**  
**DCS PROJECT NO. BI-RD 291**

Western Connecticut State University is seeking bid proposals for all labor and materials required to provide IT upgrades to the existing residence apartments/rooms and Wireless Access Points (WAPs) structured cabling system at Western Connecticut State University's Litchfield Residence Hall, located in Danbury, CT. Existing cable raceways in the apartments shall be demolished and new cable raceways shall be installed to accommodate Category 6 UTP cable. The project includes the addition of outlets to two (2) existing Telecom Rooms on the 2<sup>nd</sup> floor of Litchfield Hall. Existing equipment racks will be used for additional patch panels to support the additional outlets.

In our continuing effort to assist in the economic development of Connecticut's small and minority business enterprises, this Invitation to Bid is reserved for vendors holding a current SBE/MBE set-aside certificate from the State of Connecticut Department of Administrative Services (DAS) Supplier Diversity (Set-Aside) Program. Please note, set-aside certificates that will have expired prior to the bid opening date, but are pending recertification approval by the DAS, do not qualify. **Please note: The CT Dept. of Labor's Prevailing Wage Rates shall apply to this project.**

The Project Manual and project related drawings are available on the State of Connecticut's DAS Contracting Portal. Reference Bid No.:2017-ERB-0321.

All contractors are required to visit the site and verify existing conditions. A mandatory pre-bid meeting is scheduled for Tuesday, September 27, 2016 at 10:30 a.m., beginning in Room 202A of the Midtown Student Center.

Any questions or discrepancies should be submitted in writing no later than Wednesday, October 5, 2016 by 4:00 p.m., to the WCSU's Administrative Services/Purchasing Office, located on the lower level of University Hall, WCSU,181 White Street, Danbury, CT 06810; Attn: Esther Boriss; fax no. 203-837-8659. Responses to any and all inquiries shall be issued via addenda, no later than 4:00 p.m., Tuesday, October 11, 2016. Any and all addenda shall be posted on the DAS contracting portal.

Sealed bids should be submitted to Ms. Esther Boriss, Associate Director, Administrative Services/Purchasing, University Hall, Lower Level, Western Connecticut State University, 181 White Street, Danbury, CT 06810. Bids should be submitted on or before Tuesday, October 18, 2016 by 2:30 p.m. Bids will be opened publicly at the aforementioned time in the Purchasing Office. Bids received after that time will not be accepted. Interested parties are invited to attend. Bidders should submit bids in a sealed envelope with words, "**Sealed Bid No. 2017-ERB-0321,**" the due date, and their set-aside status (SBE/MBE) on the lower left-hand corner of the envelope.

Bids are to be based on the work called for on the sketches and specifications for the subject project, as well as any addenda issued during the bid process. Bids showing informalities, qualifications or conditions may be rejected at the option of the University. Each bidder must note receipt of any Addenda or bulletins when submitting a bid. All bidders shall verify dimensions and conditions at the site and be responsible for satisfying himself as to all requirements of the contract.

Bids must be held for a period of 90 calendar days following the date of the bid opening. Following 90 calendar days, if attempted negotiations with the lowest bidder fail to result in a contract, the University reserves the right to re-bid the project.

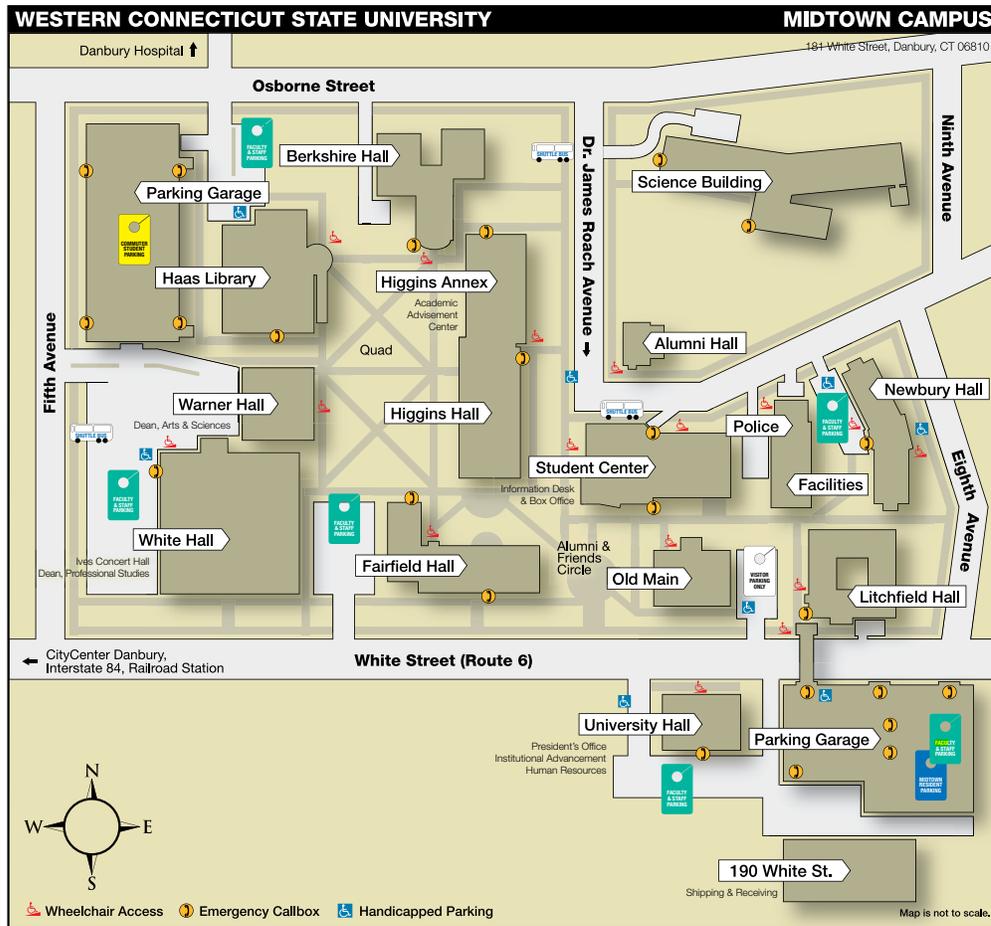
The awarded contractor shall present submittals within one week of issuance of contract or letter of intent. All work must be coordinated with the university's construction administrator and the general contractor-of-record for the Litchfield Hall Major Renovations project; all work must be completed no later than May 26, 2017.

The University reserves the right to waive any technical defects in the bids, to reject any bids that do not conform to the terms described herein, and to accept or reject any part of any bid, and to reject all bids and, again, invite bids.

**END**



# Campus Maps & Directions



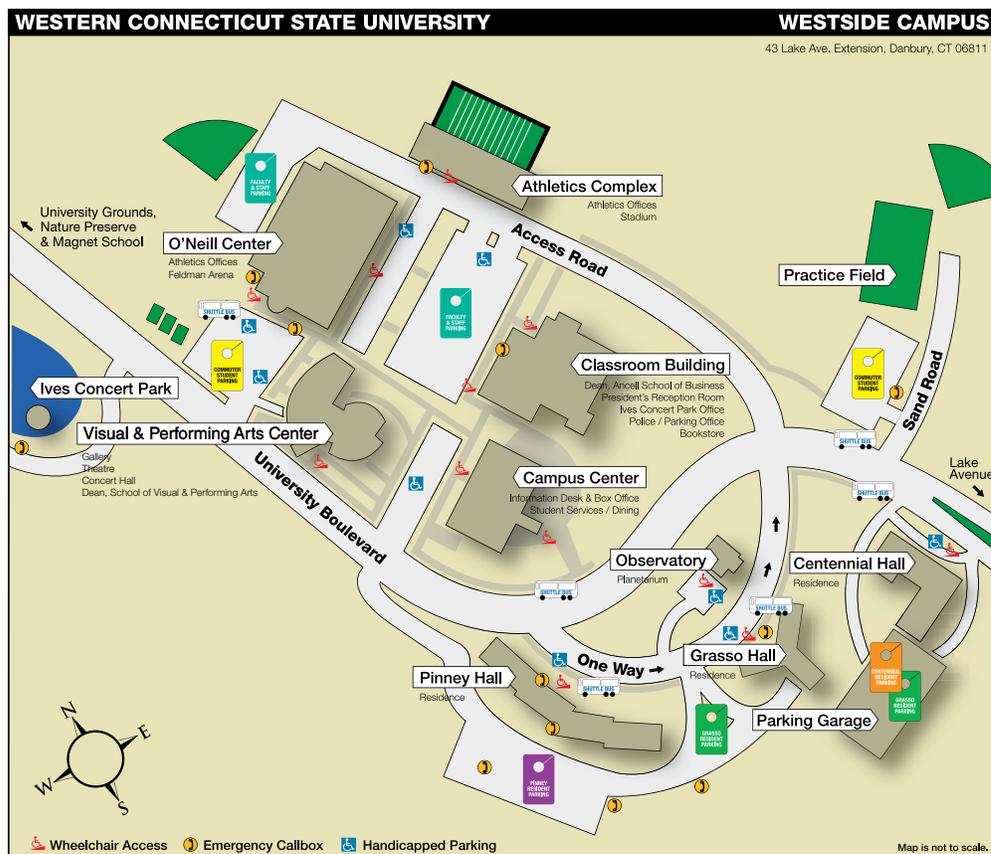
## To Midtown campus (181 White Street)

*From the East:* Take Exit 5 off I-84 to first traffic light (Clapboard Ridge Road); turn right and continue on Main Street to White Street (fifth traffic light); turn left onto White Street and continue one half mile to campus on left.

*From the West:* Take Exit 5 off I-84 to first traffic light (Main Street); turn right and continue on Main Street to White Street (fourth traffic light); turn left onto White Street and continue one half mile to campus on left. Visitor parking is available in the lot adjacent to Old Main on the Midtown campus.

## To Westside campus (43 Lake Ave. Extension)

Take Exit 4 off I-84; turn right onto Lake Avenue. Travel approximately one mile to campus entrance on right.



## Campus-to-Campus

*Midtown to Westside:* Follow White Street and take a right onto Main Street (third traffic light). Follow Main Street to third traffic light (Main Street becomes Clapboard Ridge). Turn left onto I-84 West. Take Exit 4 off I-84. Turn right onto Lake Avenue. Travel approximately one mile. Campus entrance is on the directly across from Stop & Shop. General parking is available along University Boulevard.

*Westside to Midtown:* Turn left onto Lake Avenue for approximately one mile. Turn left onto I-84 East (third traffic light). Take Exit 5 off I-84 to first traffic light (Main Street). Turn right and continue on Main Street to White Street (fourth traffic light). Turn left onto White Street and continue one half mile. The campus is on the left.



## **SPECIAL BID PROVISION**

In our continuing effort to assist in the economic development of Connecticut's small and minority business enterprises, this Invitation to Bid is reserved for vendors holding a current SBE/MBE set-aside certificate from the State of Connecticut Department of Administrative Services (DAS) Supplier Diversity (Set-Aside) Program. Please note, set-aside certificates that will have expired prior to the bid opening date, but are pending recertification approval by the DAS, do not qualify.

### **Set-Aside Bidder Requirements**

Bidders are required to provide a copy of the company's current certification. Also, DAS-certified bidders must indicate their Set-Aside status by writing SBE/MBE on the lower left-hand corner of the envelope in which the bid is submitted.

### **How to Obtain a Set-Aside Application**

For information regarding eligibility requirements, and to obtain certification or re-certification applications, please contact:

Department of Administrative Services  
Supplier Diversity Program  
165 Capitol Avenue  
Hartford, CT 06106  
Phone: 860-713-5236

OR

Visit their website at [www.das.state.ct.us](http://www.das.state.ct.us) and click on "**Supplier Diversity**" under the "**Services to Businesses**" heading.

**END**



## **INSTRUCTIONS TO BIDDERS**

- A. Bids are to be based on the work called for on the drawings and specifications for the subject project, as well as any addenda issued during the bid process. Bids showing informalities, qualifications or conditions may be rejected at the option of the University.

The University reserves the right to waive any technical defects in the bids, to reject any bids that do not conform to the terms described herein, and to accept or reject any part of any bid, and to reject all bids and again invite bids.

- B. Time limits will be as here-in-forth set:

1. Shop drawings/submittals must be submitted for approval within five days after issuance of contract or letter of intent.
2. All work must be completed no later than May 26, 2017.

- C. Addenda – Any addenda issued to this bid will be posted on the State of Connecticut Department of Administrative Services’ website bid portal, under Western Connecticut State University’s (WCSU) bid postings. The DAS website address is [www.das.state.ct.us](http://www.das.state.ct.us). Each bidder must note receipt of any Addenda or bulletins when submitting a bid.

- D. The bidding documents are as follows:

1. Project Manual entitled “Litchfield Residence Hall IT Infrastructure Upgrades” dated September 12, 2016.
2. Drawings entitled “Litchfield Residence Hall IT Infrastructure Upgrades” and dated 9/12/16.

- E. The bid package will contain the following:

WCSU Bid Form – This will contain the costs to provide all of the work shown or called for in the contract documents.

Checklist Items – All other required documentation must be submitted, as per the “Bid Submission Checklist Form.”

- F. Bids must be held for a period of 90 calendar days following the date of the bid opening. Following 90 calendar days, if attempted negotiations with the lowest bidder fail to result in a contract, the University reserves the right to re-bid the project.

- G. All bidders will verify dimensions and conditions at the site and be responsible for satisfying himself as to all requirements of the contract.
- H. All bids will assume that any and all electrical work shall be executed by licensed electricians, in accordance with current codes.
- I. Pre-bid Meeting – All contractors are required to visit the site and become familiar with existing conditions. A mandatory pre-bid walk-thru meeting is scheduled for Tuesday, September 27, 2016 at 10:30 a.m., beginning in the Midtown Student Center, Conference Room 202A, on WCSU's Midtown Campus. The agency representative for this project is Eric J. Lessne, Associate Director for Project Management and Engineering, CSCU; cell no. 860-982-8364.
- J. Inquiry Period - Any questions or discrepancies should be submitted in writing by 4:00 p.m., Wednesday, October 5, 2016, to the WCSU Dept. of Administrative Services/Purchasing Office, located on the lower level of University Hall, WCSU, 181 White Street, Danbury, CT 06810; Attn: Esther Boriss; fax no. 203-837-8659. Responses to any and all inquiries shall be issued via addenda, no later than 4:00 p.m., October 11, 2016. Any and all addenda shall be posted on the DAS contracting portal.
- K. Bid Opening – Sealed bids should be submitted to Ms. Esther Boriss, Associate Director, Administrative Services/Purchasing, University Hall, Lower Level, Western Connecticut State University, 181 White Street, Danbury, CT 06810. Bids should be submitted on or before Tuesday, October 18, 2016 at 2:30 p.m. Bids will be opened publicly at the aforementioned time in the Purchasing Office. Bids received after that time will not be accepted. Interested parties are invited to attend. Bidders should submit bids in a sealed envelope with words, "Sealed Bid No. 2017-ERB-0321," and the due date.

**END**

**WESTERN CONNECTICUT STATE UNIVERSITY  
BID SUBMISSION CHECKLIST FORM  
BID NO. 2017-ERB-0321**

**Project: Litchfield Residence Hall IT Infrastructure Upgrades; DCS Project No. BI-RD 291**

Listed below are the following forms/documentation that must be completed and submitted in the bid package before the official bid opening. Failure to comply may result in the disqualification of the bid submission.

- WCSU Bid Form
- DAS Supplier Diversity (Set-Aside) Program Certificate
- CHRO Notification to Bidders/Bidder Contract Compliance Monitoring Report
- CHRO Form of Proposal – Set-Aside Worksheet
- Bidders Qualification Statement
- OPM Ethics Form 5 - Consulting Agreement Affidavit
- Bid Bond – ON PROJECTS \$50,000 OR OVER (10%)
- Certificate of Insurance
- Dept. of Labor - Contractors Wage Certification Form
- Dept. of Labor - Contracting Agency Certification Form

**Below are the following forms/documentation that are to be submitted at time of Contract Execution:**

- OPM Ethics Form 1 - Gift and Campaign Contribution Certification
- OPM Ethics Form 5 - Consulting Agreement Affidavit
- OPM Nondiscrimination Certification Form C – Affidavit by Entity
- OPM Nondiscrimination Certification Form D or Form E (as applicable)
- Performance Bond
- Labor and Materials Payment Bond
- Contractor’s proposed construction schedule in format acceptable to the University.

END



**WESTERN CONNECTICUT STATE UNIVERSITY**  
**BID FORM**  
**BID NO. 2017-ERB-0321**

**BIDDER:** \_\_\_\_\_

\_\_\_\_\_ Address Telephone No.

**BID PROPOSAL FOR:**

**LITCHFIELD RESIDENCE HALL IT INFRASTRUCTURE UPGRADES**  
**DCS PROJECT NO. 2017-ERB-0321**

**ADDRESSED TO:**

Ms. Esther Boriss  
Associate Director of Administrative Services/Purchasing  
Western Connecticut State University, 181 White Street, Danbury, CT 06810

In preparing this Bid, we have carefully examined the Bidding Documents for this Work. We have visited the site and noted the conditions affecting the Work.

The Bidding Documents referred to include Drawings and Specifications prepared by Western Connecticut State University and entitled:

\_\_\_\_\_

We acknowledge receiving the following Addenda issued by the Architect:

No. 1 dated \_\_\_\_\_ No. 2 dated \_\_\_\_\_ No. 3 dated \_\_\_\_\_ No. 4 dated \_\_\_\_\_

**BASE BID:**

We propose to perform the Work described in the Bidding Documents, in keeping with the definitions of Article 1 of the Instructions to Bidders, for the Base Bid Sum of:

\_\_\_\_\_ \$ \_\_\_\_\_

Dollars

**TIME OF COMPLETION:**

We agree that we shall provide submittals within one week of issuance of contract or letter of intent. All work will be completed no later than May 26, 2017.

**BID ACCEPTANCE:**

We agree that this proposal shall not be withdrawn for a period of ninety calendar days after date of submittal. We understand that Owner reserves the right to accept any Bid, reject any or all Bids, and to waive any informality in the Bidding. At the time of execution of the contract, we shall furnish all required documentation as listed on the Bid Submission Checklist Form.

**Firm Name:** \_\_\_\_\_

**Address:** \_\_\_\_\_  
\_\_\_\_\_

**By:** \_\_\_\_\_ **Title:** \_\_\_\_\_

(Name Typed)

**Signature:** \_\_\_\_\_ **Date:** \_\_\_\_\_

The Bidder is a/an (individual) (partnership) (corporation). Names and titles of other officers or partners are:

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

(For corporation, give State of incorporation and affix corporate seal.)



## STATE OF CONNECTICUT GIFT AND CAMPAIGN CONTRIBUTION CERTIFICATION

*Written or electronic certification to accompany a State contract with a value of \$50,000 or more, pursuant to C.G.S. §§ 4-250, 4-252(c) and 9-612(f)(2) and Governor Dannel P. Malloy's Executive Order 49.*

### INSTRUCTIONS:

Complete all sections of the form. Attach additional pages, if necessary, to provide full disclosure about any lawful campaign contributions made to campaigns of candidates for statewide public office or the General Assembly, as described herein. Sign and date the form, under oath, in the presence of a Commissioner of the Superior Court or Notary Public. Submit the completed form to the awarding State agency at the time of initial contract execution and if there is a change in the information contained in the most recently filed certification, such person shall submit an updated certification either (i) not later than thirty (30) days after the effective date of such change or (ii) upon the submittal of any new bid or proposal for a contract, whichever is earlier. Such person shall also submit an accurate, updated certification not later than fourteen days after the twelve-month anniversary of the most recently filed certification or updated certification.

- CHECK ONE:**     Initial Certification     12 Month Anniversary Update (Multi-year contracts only.)
- Updated Certification because of change of information contained in the most recently filed certification or twelve-month anniversary update.

### GIFT CERTIFICATION:

As used in this certification, the following terms have the meaning set forth below:

- 1) "Contract" means that contract between the State of Connecticut (and/or one or more of its agencies or instrumentalities) and the Contractor, attached hereto, or as otherwise described by the awarding State agency below;
- 2) If this is an Initial Certification, "Execution Date" means the date the Contract is fully executed by, and becomes effective between, the parties; if this is a twelve-month anniversary update, "Execution Date" means the date this certification is signed by the Contractor;
- 3) "Contractor" means the person, firm or corporation named as the contractor below;
- 4) "Applicable Public Official or State Employee" means any public official or state employee described in C.G.S. §4-252(c)(1)(i) or (ii);
- 5) "**Gift**" has the same meaning given that term in C.G.S. § 4-250(1);
- 6) "Principals or Key Personnel" means and refers to those principals and key personnel of the Contractor, and its or their agents, as described in C.G.S. §§ 4-250(5) and 4-252(c)(1)(B) and (C).

I, the undersigned, am a Principal or Key Personnel of the person, firm or corporation authorized to execute this certification on behalf of the Contractor. I hereby certify that, no gifts were made by (A) such person, firm, corporation, (B) any principals and key personnel of the person firm or corporation who participate substantially in preparing bids, proposals or negotiating state contracts or (C) any agent of such, firm, corporation, or principals or key personnel who participates substantially in preparing bids, proposals or negotiating state contracts, to (i) any public official or state employee of the state agency or quasi-public agency soliciting bids or proposals for state contracts who participates substantially in the preparation of bid solicitations or request for proposals for state contracts or the negotiation or award of state contracts or (ii) any public official or state employee of any other state agency, who has supervisory or appointing authority over such state agency or quasi-public agency.

I further certify that no Principals or Key Personnel know of any action by the Contractor to circumvent (or which would result in the circumvention of) the above certification regarding **Gifts** by providing for any other Principals, Key Personnel, officials, or employees of the Contractor, or its or their agents, to make a **Gift** to any Applicable Public Official or State Employee. I further certify that the Contractor made the bid or proposal for the Contract without fraud or collusion with any person.

**CAMPAIGN CONTRIBUTION CERTIFICATION:**

I further certify that, on or after January 1, 2011, neither the Contractor nor any of its principals, as defined in C.G.S. § 9-612(f)(1), has made any **campaign contributions** to, or solicited any contributions on behalf of, any exploratory committee, candidate committee, political committee, or party committee established by, or supporting or authorized to support, any candidate for statewide public office, in violation of C.G.S. § 9-612(f)(2)(A). I further certify that **all lawful campaign contributions** that have been made on or after January 1, 2011 by the Contractor or any of its principals, as defined in C.G.S. § 9-612(f)(1), to, or solicited on behalf of, any exploratory committee, candidate committee, political committee, or party committee established by, or supporting or authorized to support any candidates for statewide public office or the General Assembly, are listed below:

**Lawful Campaign Contributions to Candidates for Statewide Public Office:**

<u>Contribution Date</u>	<u>Name of Contributor</u>	<u>Recipient</u>	<u>Value</u>	<u>Description</u>

**Lawful Campaign Contributions to Candidates for the General Assembly:**

<u>Contribution Date</u>	<u>Name of Contributor</u>	<u>Recipient</u>	<u>Value</u>	<u>Description</u>

Sworn as true to the best of my knowledge and belief, subject to the penalties of false statement.

\_\_\_\_\_  
Printed Contractor Name

\_\_\_\_\_  
**Printed Name of Authorized Official**

\_\_\_\_\_  
**Signature of Authorized Official**

**Subscribed and acknowledged before me this \_\_\_\_\_ day of \_\_\_\_\_, 20\_\_\_\_.**

\_\_\_\_\_  
**Commissioner of the Superior Court (or Notary Public)**

\_\_\_\_\_  
**My Commission Expires**













**STATE OF CONNECTICUT**  
**NONDISCRIMINATION CERTIFICATION – New Resolution**  
**By Entity**  
**For Contracts Valued at \$50,000 or More**

*Documentation in the form of a corporate, company, or partnership policy adopted by resolution of the board of directors, shareholders, managers, members or other governing body of a contractor that certifies the contractor complies with the nondiscrimination agreements and warranties under Connecticut General Statutes §§ 4a-60(a)(1) and 4a-60a(a)(1), as amended*

**INSTRUCTIONS:**

For use by an entity (corporation, limited liability company, or partnership) when entering into any contract type with the State of Connecticut valued at \$50,000 or more for any year of the contract. Complete all sections of the form. Submit to the awarding State agency prior to contract execution.

**CERTIFICATION OF RESOLUTION:**

I, \_\_\_\_\_ , \_\_\_\_\_ , of \_\_\_\_\_ ,  
Authorized Signatory Title Name of Entity

an entity duly formed and existing under the laws of \_\_\_\_\_ ,  
Name of State or Commonwealth

certify that the following is a true and correct copy of a resolution adopted on the \_\_\_\_\_ day of \_\_\_\_\_ , 20\_\_\_\_\_ by the governing body of \_\_\_\_\_ ,  
Name of Entity

in accordance with all of its documents of governance and management and the laws of \_\_\_\_\_ , and further certify that such resolution has not been modified  
Name of State or Commonwealth

or revoked, and is in full force and effect.

RESOLVED: That the policies of \_\_\_\_\_ comply with the  
Name of Entity  
nondiscrimination agreements and warranties of Connecticut General Statutes  
§§ 4a-60(a)(1) and 4a-60a(a)(1), as amended.

The undersigned has executed this certificate this \_\_\_\_\_ day of \_\_\_\_\_ , 20\_\_\_\_\_ .

\_\_\_\_\_  
Authorized Signatory Date

\_\_\_\_\_  
Printed Name





**STATE OF CONNECTICUT**  
**NONDISCRIMINATION CERTIFICATION – Prior Resolution**  
**By Entity**  
**For Contracts Valued at \$50,000 or More**

*Documentation in the form of a corporate, company, or partnership policy adopted by a prior resolution of the board of directors, shareholders, managers, members or other governing body of a contractor that certifies the contractor complies with the nondiscrimination agreements and warranties under Connecticut General Statutes §§ 4a-60(a)(1) and 4a-60a(a)(1), as amended*

**INSTRUCTIONS:**

For use by an entity (corporation, limited liability company, or partnership) when entering into any contract type with the State of Connecticut valued at \$50,000 or more for any year of the contract. Complete all sections of the form. Attach copy of previously adopted resolution (*State of CT, Nondiscrimination Certification, Form D: New Resolution*). Submit all documentation to the awarding State agency prior to contract execution.

**CERTIFICATION OF PRIOR RESOLUTION:**

I, the undersigned, am a duly authorized corporate officer or member of \_\_\_\_\_.  
Name of Entity

I have reviewed the attached prior resolution. I certify that:

- (1) the attached prior resolution complies with the nondiscrimination agreements and warranties of Connecticut General Statutes §§ 4a-60(a)(1) and 4a-60a(a)(1), as amended; and
- (2) the prior resolution remains in full force and effect on the date this documentation is submitted to the awarding State agency.

\_\_\_\_\_  
Authorized Signatory

\_\_\_\_\_  
Title

\_\_\_\_\_  
Printed Name

\_\_\_\_\_  
Date

**RESERVED FOR STATE USE**

I, the undersigned head of the awarding State agency, or designee, certify that the attached prior resolution complies with the nondiscrimination agreements and warranties of Connecticut General Statutes §§ 4a-60(a)(1) and 4a-60a(a)(1), as amended.

\_\_\_\_\_  
Signature of Agency Head (or designee)

\_\_\_\_\_  
Date

\_\_\_\_\_  
Awarding State Agency

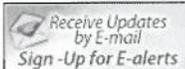




## Commission on HUMAN RIGHTS AND OPPORTUNITIES

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**Tanya A. Hughes**  
Executive Director

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### Contract Compliance

Connecticut state government spends well in excess of one billion dollars each year to purchase supplies, legal, medical and other professional services, and public works contracting services. Those who have contracts with the state to provide these services bear a special responsibility to assure that their employment and subcontracting procedures promote equal opportunity for all persons. Contract compliance laws were enacted as a means of providing equal employment opportunities for minorities and female workers and economic development and business growth opportunities for small contractors and minority and women owned businesses through the distribution of state contracting dollars.

The Connecticut Commission on Human Rights and Opportunities has the responsibility to review, monitor and enforce the equal opportunity, affirmative action and contract compliance laws of the state as they apply to contractors (including subcontractors and suppliers to contractors) who do business with the state.

#### Contract Compliance Law in Connecticut

There are two key contract compliance laws in Connecticut; the contract compliance law and the small contractors set-aside program. They apply to state agencies and to political subdivisions of the state other than municipalities. Examples of political subdivisions of the state include regional transit districts, regional planning agencies, councils of governments and other such quasi public agencies, as well as all agencies of the state.

- The **contract compliance law**, enacted as **Conn. Gen. Stat. Section 4a-60**, and the administrative regulations issued pursuant thereto prohibit all those who contract with the state, including subcontractors, from engaging in or permitting discrimination in recruiting, hiring or other employment practices. The law further requires state agencies to aggressively solicit the participation of minority and women owned businesses in state contracts.
- The agencies covered by the law must report all their contracts valued in excess of \$3,000 to CHRO and provide CHRO information necessary to assess their compliance with the law.
- There is a subset of the contract compliance law that pertains to construction related contracts. It places specific contract compliance responsibilities on **public works contracts**. These are agreements for construction, rehabilitation, conversion, extension, demolition or repair of a public building, highway or other changes or improvements in real property. Link to these statutes (beginning with section 46a-68b through 46a-68k) :
- The **small contractors set-aside program** requires each state agency and political subdivision of the state other than a municipality to set as an annual goal their intention to contract with certified small contractors at least 25% of their total projected annual expenditures . The law further requires that one quarter of this amount (or 6.25% of the total projected annual expenditures) be with certified minority businesses. Thus agencies may set aside contracts in whole or in part for bid only by eligible small and/or minority businesses. Link to [small contractor program statute](#) and link to [small contractor program policy guidelines and goal setting procedures](#).
- A small contractor is a company that has been in business for at least one year, has its principal place of business in Connecticut and whose gross revenues for the prior year did not exceed 10 million dollars. As of January 1, 2008 this ceiling will increase to 15 million dollars.
- A minority business is a small contractor that is 51% owned, controlled and beneficially operated by a minority person or persons. The law defines a minority person as a person with a disability, or as any person who is:
  - a *Black American*, including a person having origins in any of the Black African racial groups;
  - a *Hispanic American*, including a person of Mexican, Puerto Rican, Cuban, Central or South American or other Spanish culture or origin;
  - an *American Indian* and a person having origins in any of the original peoples of North America and maintaining identifiable tribal affiliations through membership and participation or community identification;
  - an *Asian Pacific American* and Pacific islander;
  - a person having origins in the *Iberian Peninsula, including Portugal*; or
  - a *women*.

The Department of Administrative Services is responsible for certifying businesses as small and small minority owned businesses. Certification is for a two year period and is renewable. For more information about this process, or to download the forms necessary to be certified or re-certified, link to: [DAS Certification](#)

To review the [list of certified small and minority businesses](#) link to:

For [Contract Compliance Forms and Reports](#) link here.

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**25 Sigourney Street, Hartford, Connecticut 06106 / Phone: 860-541-3400**

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**COMMISSION ON HUMAN RIGHTS AND OPPORTUNITIES**  
**CONTRACT COMPLIANCE REGULATIONS**  
**NOTIFICATION TO BIDDERS**

(Revised 09/17/07)

The contract to be awarded is subject to contract compliance requirements mandated by Sections 4a-60 and 4a-60a of the Connecticut General Statutes; and, when the awarding agency is the State, Sections 46a-71(d) and 46a-81i(d) of the Connecticut General Statutes. There are Contract Compliance Regulations codified at Section 46a-68j-21 through 43 of the Regulations of Connecticut State Agencies, which establish a procedure for awarding all contracts covered by Sections 4a-60 and 46a-71(d) of the Connecticut General Statutes.

According to Section 46a-68j-30(9) of the Contract Compliance Regulations, every agency awarding a contract subject to the contract compliance requirements has an obligation to “aggressively solicit the participation of legitimate minority business enterprises as bidders, contractors, subcontractors and suppliers of materials.” “Minority business enterprise” is defined in Section 4a-60 of the Connecticut General Statutes as a business wherein fifty-one percent or more of the capital stock, or assets belong to a person or persons: “(1) Who are active in daily affairs of the enterprise; (2) who have the power to direct the management and policies of the enterprise; and (3) who are members of a minority, as such term is defined in subsection (a) of Section 32-9n.” “Minority” groups are defined in Section 32-9n of the Connecticut General Statutes as “(1) Black Americans . . . (2) Hispanic Americans . . . (3) persons who have origins in the Iberian Peninsula . . . (4) Women . . . (5) Asian Pacific Americans and Pacific Islanders; (6) American Indians . . .” An individual with a disability is also a minority business enterprise as provided by Section 4a-60g of the Connecticut General Statutes. The above definitions apply to the contract compliance requirements by virtue of Section 46a-68j-21(11) of the Contract Compliance Regulations.

The awarding agency will consider the following factors when reviewing the bidder’s qualifications under the contract compliance requirements:

- (a) the bidder’s success in implementing an affirmative action plan;
- (b) the bidder’s success in developing an apprenticeship program complying with Sections 46a-68-1 to 46a-68-17 of the Administrative Regulations of Connecticut State Agencies, inclusive;
- (c) the bidder’s promise to develop and implement a successful affirmative action plan;
- (d) the bidder’s submission of employment statistics contained in the “Employment Information Form”, indicating that the composition of its workforce is at or near parity when compared to the racial and sexual composition of the workforce in the relevant labor market area; and
- (e) the bidder’s promise to set aside a portion of the contract for legitimate minority business enterprises. See Section 46a-68j-30(10)(E) of the Contract Compliance Regulations.

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**INSTRUCTIONS AND OTHER INFORMATION**

The following BIDDER CONTRACT COMPLIANCE MONITORING REPORT must be completed in full, signed, and submitted with the bid for this contract. The contract awarding agency and the Commission on Human Rights and Opportunities will use the information contained thereon to determine the bidders compliance to Sections 4a-60 and 4a-60a CONN. GEN. STAT., and Sections 46a-68j-23 of the Regulations of Connecticut State Agencies regarding equal employment opportunity, and the bidder’s □□good faith efforts to include minority business enterprises as subcontractors and suppliers for the work of the contract.

1) **Definition of Small Contractor**

Section 4a-60g CONN. GEN. STAT. defines a small contractor as a company that has been doing business under the same management and control and has maintained its principal place of business in Connecticut for a one year period immediately prior to its application for certification under this section, had gross revenues not exceeding ten million dollars in the most recently completed fiscal year, and at least fifty-one percent of the ownership of which is held by a person or persons who are active in the daily affairs of the company, and have the power to direct the management and policies of the company, except that a nonprofit corporation shall be construed to be a small contractor if such nonprofit corporation meets the requirements of subparagraphs (A) and (B) of subdivision 4a-60g CONN. GEN. STAT.

**MANAGEMENT:** Managers plan, organize, direct, and control the major functions of an organization through subordinates who are at the managerial or supervisory level. They make policy decisions and set objectives for the company or departments. They are not usually directly involved in production or providing services. Examples include top executives, public relations managers, managers of operations specialties (such as financial, human resources, or purchasing managers), and construction and engineering managers.

**BUSINESS AND FINANCIAL OPERATIONS:** These occupations include managers and professionals who work with the financial aspects of the business. These occupations include accountants and auditors, purchasing agents, management analysts, labor relations specialists, and budget, credit, and financial analysts.

**MARKETING AND SALES:** Occupations related to the act or process of buying and selling products and/or services such as sales engineer, retail sales workers and sales representatives including wholesale.

**LEGAL OCCUPATIONS:** In-House Counsel who is charged with providing legal advice and services in regards to legal issues that may arise during the course of standard business practices. This category also includes assistive legal occupations such as paralegals, legal assistants.

**COMPUTER SPECIALISTS:** Professionals responsible for the computer operations within a company are grouped in this category. Examples of job titles in this category include computer programmers, software engineers, database administrators, computer scientists, systems analysts, and computer support specialists

**ARCHITECTURE AND ENGINEERING:** Occupations related to architecture, surveying, engineering, and drafting are included in this category. Some of the job titles in this category include electrical and electronic engineers, surveyors, architects, drafters, mechanical engineers, materials engineers, mapping technicians, and civil engineers.

**OFFICE AND ADMINISTRATIVE SUPPORT:** All clerical-type work is included in this category. These jobs involve the preparing, transcribing, and preserving of written communications and records; collecting accounts; gathering and distributing information; operating office machines and electronic data processing equipment; and distributing mail. Job titles listed in this category include telephone operators, bill and account collectors, customer service representatives, dispatchers, secretaries and administrative assistants, computer operators and clerks (such as payroll, shipping, stock, mail and file).

**BUILDING AND GROUNDS CLEANING AND MAINTENANCE:** This category includes occupations involving landscaping, housekeeping, and janitorial services. Job titles found in this category include supervisors of landscaping or housekeeping, janitors, maids, grounds maintenance workers, and pest control workers.

**CONSTRUCTION AND EXTRACTION:** This category includes construction trades and related occupations. Job titles found in this category include boilermakers, masons (all types), carpenters, construction laborers, electricians, plumbers (and related trades), roofers, sheet metal workers, elevator installers, hazardous materials removal workers, paperhangers, and painters. Paving, surfacing, and tamping equipment operators; drywall and ceiling tile installers; and carpet, floor and tile installers and finishers are also included in this category. First line supervisors, foremen, and helpers in these trades are also grouped in this category..

**INSTALLATION, MAINTENANCE AND REPAIR:** Occupations involving the installation, maintenance, and repair of equipment are included in this group. Examples of job titles found here are heating, ac, and refrigeration mechanics and installers; telecommunication line installers and repairers; heavy vehicle and mobile equipment service technicians and mechanics; small engine mechanics; security and fire alarm systems installers; electric/electronic repair, industrial, utility and transportation equipment; millwrights; riggers; and manufactured building and mobile home installers. First line supervisors, foremen, and helpers for these jobs are also included in the category.

**MATERIAL MOVING WORKERS:** The job titles included in this group are Crane and tower operators; dredge, excavating, and lading machine operators; hoist and winch operators; industrial truck and tractor operators; cleaners of vehicles and equipment; laborers and freight, stock, and material movers, hand; machine feeders and offbearers; packers and packagers, hand; pumping station operators; refuse and recyclable material collectors; and miscellaneous material moving workers.

**PRODUCTION WORKERS:** The job titles included in this category are chemical production machine setters, operators and tenders; crushing/grinding workers; cutting workers; inspectors, testers sorters, samplers, weighers; precious stone/metal workers; painting workers; cementing/gluing machine operators and tenders; etchers/engravers; molders, shapers and casters except for metal and plastic; and production workers.

<p><u>White</u> (not of Hispanic Origin)- All persons having origins in any of the original peoples of Europe, North Africa, or the Middle East.</p> <p><u>Black</u>(not of Hispanic Origin)- All persons having origins in any of the Black racial groups of Africa.</p> <p><u>Hispanic</u>- All persons of Mexican, Puerto Rican, Cuban, Central or South American, or other Spanish culture or origin, regardless of race.</p>	<p><u>Asian or Pacific Islander</u>- All persons having origins in any of the original peoples of the Far East, Southeast Asia, the Indian subcontinent, or the Pacific Islands. This area includes China, India, Japan, Korea, the Philippine Islands, and Samoa.</p> <p><u>American Indian or Alaskan Native</u>- All persons having origins in any of the original peoples of North America, and who maintain cultural identification through tribal affiliation or community recognition.</p>
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## BIDDER CONTRACT COMPLIANCE MONITORING REPORT

### PART I - Bidder Information

Company Name Street Address City & State Chief Executive	Bidder Federal Employer Identification Number _____ Or Social Security Number _____
Major Business Activity (brief description)	Bidder Identification (response optional/definitions on page 1)  -Bidder is a small contractor. Yes__ No__ -Bidder is a minority business enterprise Yes__ No__ (If yes, check ownership category) Black__ Hispanic__ Asian American__ American Indian/Alaskan Native__ Iberian Peninsula__ Individual(s) with a Physical Disability__ Female__
Bidder Parent Company (If any)	- Bidder is certified as above by State of CT Yes__ No__
Other Locations in Ct. (If any)	

### PART II - Bidder Nondiscrimination Policies and Procedures

1. Does your company have a written Affirmative Action/Equal Employment Opportunity statement posted on company bulletin boards? <p style="text-align: right;">Yes__ No__</p>	7. Do all of your company contracts and purchase orders contain non-discrimination statements as required by Sections 4a-60 & 4a-60a Conn. Gen. Stat.? <p style="text-align: right;">Yes__ No__</p>
2. Does your company have the state-mandated sexual harassment prevention in the workplace policy posted on company bulletin boards? <p style="text-align: right;">Yes__ No__</p>	8. Do you, upon request, provide reasonable accommodation to employees, or applicants for employment, who have physical or mental disability? <p style="text-align: right;">Yes__ No__</p>
3. Do you notify all recruitment sources in writing of your company's Affirmative Action/Equal Employment Opportunity employment policy?  Yes__ No__	9. Does your company have a mandatory retirement age for all employees? <p style="text-align: right;">Yes__ No__</p>
4. Do your company advertisements contain a written statement that you are an Affirmative Action/Equal Opportunity Employer? Yes__ No__	10. If your company has 50 or more employees, have you provided at least two (2) hours of sexual harassment training to all of your supervisors? <p style="text-align: right;">Yes__ No__ NA__</p>
5. Do you notify the Ct. State Employment Service of all employment openings with your company? Yes__ No__	11. If your company has apprenticeship programs, do they meet the Affirmative Action/Equal Employment Opportunity requirements of the apprenticeship standards of the Ct. Dept. of Labor? <p style="text-align: right;">Yes__ No__ NA__</p>
6. Does your company have a collective bargaining agreement with workers? <p style="text-align: right;">Yes__ No__</p> 6a. If yes, do the collective bargaining agreements contain non-discrimination clauses covering all workers? Yes__ No__	12. Does your company have a written affirmative action Plan? Yes__ No__ If no, please explain.
6b. Have you notified each union in writing of your commitments under the nondiscrimination requirements of contracts with the state of Ct? <p style="text-align: right;">Yes__ No__</p>	13. Is there a person in your company who is responsible for equal employment opportunity? Yes__ No__ If yes, give name and phone number. _____ _____

1. Will the work of this contract include subcontractors or suppliers? Yes\_\_ No\_\_

1a. If yes, please list all subcontractors and suppliers and report if they are a small contractor and/or a minority business enterprise. (defined on page 1 / use additional sheet if necessary)

1b. Will the work of this contract require additional subcontractors or suppliers other than those identified in 1a. above?

Yes\_\_ No\_\_

**PART IV - Bidder Employment Information**

Date:

JOB CATEGORY *	OVERALL TOTALS	WHITE (not of Hispanic origin)		BLACK (not of Hispanic origin)		HISPANIC		ASIAN or PACIFIC ISLANDER		AMERICAN INDIAN or ALASKAN NATIVE	
		Male	Female	Male	Female	Male	Female	Male	Female	male	female
Management											
Business & Financial Ops											
Marketing & Sales											
Legal Occupations											
Computer Specialists											
Architecture/Engineering											
Office & Admin Support											
Bldg/ Grounds Cleaning/Maintenance											
Construction & Extraction											
Installation , Maintenance & Repair											
Material Moving Workers											
Production Occupations											
TOTALS ABOVE											
Total One Year Ago											
FORMAL ON THE JOB TRAINEES (ENTER FIGURES FOR THE SAME CATEGORIES AS ARE SHOWN ABOVE)											
Apprentices											
Trainees											

\*NOTE: JOB CATEGORIES CAN BE CHANGED OR ADDED TO (EX. SALES CAN BE ADDED OR REPLACE A CATEGORY NOT USED IN YOUR COMPANY)

1. Which of the following recruitment sources are used by you? (Check yes or no, and report percent used)				2. Check (X) any of the below listed requirements that you use as a hiring qualification  (X)		3. Describe below any other practices or actions that you take which show that you hire, train, and promote employees without discrimination
SOURCE	YES	NO	% of applicants provided by source			
State Employment Service					Work Experience	
Private Employment Agencies					Ability to Speak or Write English	
Schools and Colleges					Written Tests	
Newspaper Advertisement					High School Diploma	
Walk Ins					College Degree	
Present Employees					Union Membership	
Labor Organizations					Personal Recommendation	
Minority/Community Organizations					Height or Weight	
Others (please identify)					Car Ownership	
					Arrest Record	
					Wage Garnishments	

Certification (Read this form and check your statements on it CAREFULLY before signing). I certify that the statements made by me on this BIDDER CONTRACT COMPLIANCE MONITORING REPORT are complete and true to the best of my knowledge and belief, and are made in good faith. I understand that if I knowingly make any misstatements of facts, I am subject to be declared in non-compliance with Section 4a-60, 4a-60a, and related sections of the CONN. GEN. STAT.

(Signature)	(Title)	(Date Signed)	(Telephone)
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WESTERN CONNECTICUT STATE UNIVERSITY

NOTICE OF CHANGES TO THE  
THE CONNECTICUT COMMISSION ON HUMAN RIGHTS & OPPORTUNITIES  
SELF-PERFORMANCE & SUB-CONTRACTING REQUIREMENTS  
FOR THE SUPPLIER DIVERSITY (SET-ASIDE SBE/MBE) PROGRAM

The contractor who is selected to perform this state project must file and receive an approved Affirmative Action Plan by the Commission of Human Rights and Opportunities. This project is subject to the State Set-Aside goals and new self- performance and subcontracting requirements.

The contractor selected to perform this state project needs to solicit multiple bids per subcontract (class of work) from an assorted variety of subcontractors, non-trade related service providers, ethnic minority, woman, certified by State of CT. Dept. of Administrative Services Supplier Diversity (Set-Aside) Program.

Please note the following **NEW STATUTORY CHANGES TO** 4a-60g, effective October 1, 2013 as it relates to **Self-Performance & Subcontracting Requirements**

P. A. 13-304 increases the percentages of work required to be performed by any prime SBE/MBE company that is awarded a contract under the set-aside statutes. Previously, a company awarded a set-aside contract was required to self-perform at least 15% of such contract; it will now be required to self-perform at least 30%. Further, SBEs and MBEs that subcontract some of the work under their set-aside contracts will be required to subcontract at least 50% of the remaining work (i.e. the work not self-performed by the prime) to SBEs and MBEs, respectively, instead of 25%, under current law. Please note that the 50% requirement applies to the work subcontracted; in other words, the percentage to be self-performed by the prime contractor cannot be used to accomplish the 50% requirement.

- Example: If an SBE is awarded a \$100,000 state contract under the set-aside statutes, that SBE will be required to perform at least \$30,000 of the work under the contract with its own workforce. If the SBE self-performs \$30,000 of the work, and chooses to subcontract the remainder, the SBE must subcontract at least \$35,000 of the work to another certified SBE (50% of the remaining \$70,000 on the contract).

**The CHRO Form of Proposal Set-Aside Worksheet must be submitted with the bid package.**



**LITCHFIELD RESIDENCE HALL IT INFRASTRUCTURE UPGRADES  
 BID #2017-ERB-0321**

**CHRO - Form of Proposal**

**Set Aside Worksheet**

	Subcontractor Name	Class of work	SBE	MBE	Prime Contractor self performing \$\$	Subcontract amounts
1					\$	
2						\$
3						\$
4						\$
5						\$
6						\$
7						\$
8						\$
9	Prime Contractor Total				0	
10	SBE Subtotal	Add SBE subcontract amounts from above list and enter total at right				\$
11	MBE/WBE Subtotal	Add MBE/WBE subcontract amounts from the list and enter total to the right				\$
12	Lump Sum base bid	Enter total lump sum base bid from bid submittal form				\$
13	Bidding Prime Contractor % and \$\$\$\$				0	
14	Remaining value subject to SBE/MBE = lump sum line 12 minus prime contractor total					\$
15	SBE Percentage	Divide line 10 by line 14. Enter % to the right				%
16	MBE/WBE Percentage	Divide line 11 by line 14. Enter % to the right.				%
17	<b>Total SBE/MBE/WBE %</b>	<b>Must = 50% of line 14 /add line 15+16 for total %</b>				<b>%</b>

In determining and ensuring compliance with CHRO requirements this worksheet must be submitted as part of the bid submittal package. Failure to do so may be grounds for disqualification of the bid. Compliance determination shall initially be based on the base bid sum. However, for bid solicitations requiring acceptance of Alternates or Supplemental bids, a revised worksheet shall be required prior to issuance of contract.

**The MBE requirement is still 6.25% of the entire bid total.**

Each bidder shall submit, as part of their proposal, copies of Certificates of Eligibility for each set aside subcontractor or "screen shots" from the State of Connecticut Supplier Diversity web site for each set aside subcontractor showing name and address, certification type and certificate expiration date.

Vendor Company Name (Prime Contractor) \_\_\_\_\_

Authorized signature \_\_\_\_\_ Date \_\_\_\_\_



**STATE OF CONNECTICUT  
COMMISSION ON HUMAN RIGHTS AND OPPORTUNITIES**

NOTICE CONCERNING CONTRACT COMPLIANCE RESPONSIBILITIES

**TO ALL LABOR UNIONS, WORKERS REPRESENTATIVES AND VENDORS:**

Any contract this contractor has with the State of Connecticut or political subdivisions of the state, other than municipalities, shall be performed in accordance with CONN. GEN. STAT. Section 4a-60 and Section 4a-60a.

This means that this contractor:

1. Agrees to provide the Commission on Human Rights and Opportunities (CHRO) with any information concerning this contractor's employment practices and procedures which relates to the Commission's responsibilities under CONN. GEN. STAT. Sections 4a-60 or 46a-56 or Section 4a-60a.; and
2. Agrees to include the provisions of CONN. GEN. STAT. Section 46a-60(a) and Section 4a-60a in each and every subcontract and purchase order and to take whatever action the CHRO deems necessary to enforce these provisions.

WITH REGARD TO RACE, COLOR, RELIGIOUS CREED, AGE, MARITAL STATUS, NATIONAL ORIGIN, ANCESTRY, SEX, MENTAL RETARDATION OR PHYSICAL DISABILITY, this means that this contractor:

1. Shall not discriminate or permit discrimination against anyone;
2. Shall take affirmative action so that persons applying for employment are hired on the basis of job-related qualifications and that employees once hired are treated without regard to their race, color, religious creed, age, marital status, national origin, ancestry, sex, mental retardation or physical disability, unless the contractor can show that the disability prevents performance of the work involved;
3. Shall state in all advertisements for employees that it is an affirmative action-equal opportunity employer;
4. Shall comply with CONN. GEN. STAT. Sections 4a-60, 46a-68e and 46a-68f and with each regulation or relevant order issued by the CHRO under CONN. GEN. STAT. Sections 46a-56, 46a-68e and 46a-68f; and
5. Shall make, if the contract is a public works contract, good faith efforts to employ minority business enterprises as subcontractors and suppliers of materials.

WITH REGARD TO SEXUAL ORIENTATION, GENDER IDENTITY OR EXPRESSION:

1. The contractor will not discriminate or permit discrimination against anyone, and employees will be treated without regard to their sexual orientation, gender identity or expression once employed; and
2. The contractor agrees to fully comply with Section 4a-60a and each regulation or relevant order issued by the CHRO under CONN. GEN. STAT. Section 46a-56.

Persons having questions about this notice or their rights under the law are urged to contact the:

COMMISSION ON HUMAN RIGHTS AND OPPORTUNITIES  
AFFIRMATIVE ACTION AND CONTRACT COMPLIANCE UNIT  
25 Sigourney Street  
Hartford, Connecticut 06106  
860-541-4709

COPIES OF THIS NOTICE SHALL BE POSTED IN CONSPICUOUS PLACES  
AVAILABLE TO ALL EMPLOYEES AND APPLICANTS FOR EMPLOYMENT

# SEEC FORM 10

CONNECTICUT STATE ELECTIONS ENFORCEMENT COMMISSION

Rev. 1/11

Page 1 of 3



## Notice to Executive Branch State Contractors and Prospective State Contractors of Campaign Contribution and Solicitation Limitations

### *Acknowledgement of Receipt of Explanation of Prohibitions for Incorporation in Contracting and Bidding Documents*

This notice is provided under the authority of Connecticut General Statutes §9-612(g)(2), as amended by P.A. 10-1, and is for the purpose of informing state contractors and prospective state contractors of the following law (italicized words are defined on the reverse side of this page).

### **CAMPAIGN CONTRIBUTION AND SOLICITATION LIMITATIONS**

No *state contractor, prospective state contractor, principal of a state contractor or principal of a prospective state contractor*, with regard to a *state contract* or *state contract solicitation* with or from a state agency in the executive branch or a quasi-public agency or a holder, or principal of a holder of a valid prequalification certificate, shall make a contribution to (i) an exploratory committee or candidate committee established by a candidate for nomination or election to the office of Governor, Lieutenant Governor, Attorney General, State Comptroller, Secretary of the State or State Treasurer, (ii) a political committee authorized to make contributions or expenditures to or for the benefit of such candidates, or (iii) a party committee (which includes town committees).

In addition, no holder or principal of a holder of a valid prequalification certificate, shall make a contribution to (i) an exploratory committee or candidate committee established by a candidate for nomination or election to the office of State senator or State representative, (ii) a political committee authorized to make contributions or expenditures to or for the benefit of such candidates, or (iii) a party committee.

On and after January 1, 2011, no state contractor, prospective state contractor, principal of a state contractor or principal of a prospective state contractor, with regard to a state contract or state contract solicitation with or from a state agency in the executive branch or a quasi-public agency or a holder, or principal of a holder of a valid prequalification certificate, shall **knowingly solicit** contributions from the state contractor's or prospective state contractor's employees or from a *subcontractor* or *principals of the subcontractor* on behalf of (i) an exploratory committee or candidate committee established by a candidate for nomination or election to the office of Governor, Lieutenant Governor, Attorney General, State Comptroller, Secretary of the State or State Treasurer, (ii) a political committee authorized to make contributions or expenditures to or for the benefit of such candidates, or (iii) a party committee.

### **DUTY TO INFORM**

State contractors and prospective state contractors are required to inform their principals of the above prohibitions, as applicable, and the possible penalties and other consequences of any violation thereof.

### **PENALTIES FOR VIOLATIONS**

Contributions or solicitations of contributions made in violation of the above prohibitions may result in the following civil and criminal penalties:

**Civil penalties**—Up to \$2,000 or twice the amount of the prohibited contribution, whichever is greater, against a principal or a contractor. Any state contractor or prospective state contractor which fails to make reasonable efforts to comply with the provisions requiring notice to its principals of these prohibitions and the possible consequences of their violations may also be subject to civil penalties of up to \$2,000 or twice the amount of the prohibited contributions made by their principals.

**Criminal penalties**—Any knowing and willful violation of the prohibition is a Class D felony, which may subject the violator to imprisonment of not more than 5 years, or not more than \$5,000 in fines, or both.

### **CONTRACT CONSEQUENCES**

In the case of a state contractor, contributions made or solicited in violation of the above prohibitions may result in the contract being voided.

In the case of a prospective state contractor, contributions made or solicited in violation of the above prohibitions shall result in the contract described in the state contract solicitation not being awarded to the prospective state contractor, unless the State Elections Enforcement Commission determines that mitigating circumstances exist concerning such violation.

The State shall not award any other state contract to anyone found in violation of the above prohibitions for a period of one year after the election for which such contribution is made or solicited, unless the State Elections Enforcement Commission determines that mitigating circumstances exist concerning such violation.

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## DEFINITIONS

“State contractor” means a person, business entity or nonprofit organization that enters into a state contract. Such person, business entity or nonprofit organization shall be deemed to be a state contractor until December thirty-first of the year in which such contract terminates. “State contractor” does not include a municipality or any other political subdivision of the state, including any entities or associations duly created by the municipality or political subdivision exclusively amongst themselves to further any purpose authorized by statute or charter, or an employee in the executive or legislative branch of state government or a quasi-public agency, whether in the classified or unclassified service and full or part-time, and only in such person's capacity as a state or quasi-public agency employee.

“Prospective state contractor” means a person, business entity or nonprofit organization that (i) submits a response to a state contract solicitation by the state, a state agency or a quasi-public agency, or a proposal in response to a request for proposals by the state, a state agency or a quasi-public agency, until the contract has been entered into, or (ii) holds a valid prequalification certificate issued by the Commissioner of Administrative Services under section 4a-100. “Prospective state contractor” does not include a municipality or any other political subdivision of the state, including any entities or associations duly created by the municipality or political subdivision exclusively amongst themselves to further any purpose authorized by statute or charter, or an employee in the executive or legislative branch of state government or a quasi-public agency, whether in the classified or unclassified service and full or part-time, and only in such person's capacity as a state or quasi-public agency employee.

“Principal of a state contractor or prospective state contractor” means (i) any individual who is a member of the board of directors of, or has an ownership interest of five per cent or more in, a state contractor or prospective state contractor, which is a business entity, except for an individual who is a member of the board of directors of a nonprofit organization, (ii) an individual who is employed by a state contractor or prospective state contractor, which is a business entity, as president, treasurer or executive vice president, (iii) an individual who is the chief executive officer of a state contractor or prospective state contractor, which is not a business entity, or if a state contractor or prospective state contractor has no such officer, then the officer who duly possesses comparable powers and duties, (iv) an officer or an employee of any state contractor or prospective state contractor who has *managerial or discretionary responsibilities with respect to a state contract*, (v) the spouse or a *dependent child* who is eighteen years of age or older of an individual described in this subparagraph, or (vi) a political committee established or controlled by an individual described in this subparagraph or the business entity or nonprofit organization that is the state contractor or prospective state contractor.

“State contract” means an agreement or contract with the state or any state agency or any quasi-public agency, let through a procurement process or otherwise, having a value of fifty thousand dollars or more, or a combination or series of such agreements or contracts having a value of one hundred thousand dollars or more in a calendar year, for (i) the rendition of services, (ii) the furnishing of any goods, material, supplies, equipment or any items of any kind, (iii) the construction, alteration or repair of any public building or public work, (iv) the acquisition, sale or lease of any land or building, (v) a licensing arrangement, or (vi) a grant, loan or loan guarantee. “State contract” does not include any agreement or contract with the state, any state agency or any quasi-public agency that is exclusively federally funded, an education loan, a loan to an individual for other than commercial purposes or any agreement or contract between the state or any state agency and the United States Department of the Navy or the United States Department of Defense.

“State contract solicitation” means a request by a state agency or quasi-public agency, in whatever form issued, including, but not limited to, an invitation to bid, request for proposals, request for information or request for quotes, inviting bids, quotes or other types of submittals, through a competitive procurement process or another process authorized by law waiving competitive procurement.

“Managerial or discretionary responsibilities with respect to a state contract” means having direct, extensive and substantive responsibilities with respect to the negotiation of the state contract and not peripheral, clerical or ministerial responsibilities.

“Dependent child” means a child residing in an individual's household who may legally be claimed as a dependent on the federal income tax of such individual.

“Solicit” means (A) requesting that a contribution be made, (B) participating in any fund-raising activities for a candidate committee, exploratory committee, political committee or party committee, including, but not limited to, forwarding tickets to potential contributors, receiving contributions for transmission to any such committee or bundling contributions, (C) serving as chairperson, treasurer or deputy treasurer of any such committee, or (D) establishing a political committee for the sole purpose of soliciting or receiving contributions for any committee. Solicit does not include: (i) making a contribution that is otherwise permitted by Chapter 155 of the Connecticut General Statutes; (ii) informing any person of a position taken by a candidate for public office or a public official, (iii) notifying the person of any activities of, or contact information for, any candidate for public office; or (iv) serving as a member in any party committee or as an officer of such committee that is not otherwise prohibited in this section.

“Subcontractor” means any person, business entity or nonprofit organization that contracts to perform part or all of the obligations of a state contractor's state contract. Such person, business entity or nonprofit organization shall be deemed to be a subcontractor until December thirty first of the year in which the subcontract terminates. “Subcontractor” does not include (i) a municipality or any other political subdivision of the state, including any entities or associations duly created by the municipality or political subdivision exclusively amongst themselves to further any purpose authorized by statute or charter, or (ii) an employee in the executive or legislative branch of state government or a quasi-public agency, whether in the classified or unclassified service and full or part-time, and only in such person's capacity as a state or quasi-public agency employee.

“Principal of a subcontractor” means (i) any individual who is a member of the board of directors of, or has an ownership interest of five per cent or more in, a subcontractor, which is a business entity, except for an individual who is a member of the board of directors of a nonprofit organization, (ii) an individual who is employed by a subcontractor, which is a business entity, as president, treasurer or executive vice president, (iii) an individual who is the chief executive officer of a subcontractor, which is not a business entity, or if a subcontractor has no such officer, then the officer who duly possesses comparable powers and duties, (iv) an officer or an employee of any subcontractor who has managerial or discretionary responsibilities with respect to a subcontract with a state contractor, (v) the spouse or a dependent child who is eighteen years of age or older of an individual described in this subparagraph, or (vi) a political committee established or controlled by an individual described in this subparagraph or the business entity or nonprofit organization that is the subcontractor.

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CONNECTICUT STATE ELECTIONS ENFORCEMENT COMMISSION

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## ACKNOWLEDGEMENT OF RECEIPT

\_\_\_\_\_  
SIGNATURE

\_\_\_\_\_  
DATE (mm/dd/yyyy)

### NAME OF SIGNER

First Name	MI	Last Name	Suffix

### TITLE

### COMPANY NAME

Additional information may be found on the website of the State Elections Enforcement Commission,

[www.ct.gov/seec](http://www.ct.gov/seec)

Click on the link to "Lobbyist/Contractor Limitations"

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**GENERAL CONTRACTOR**  
**BIDDERS QUALIFICATION STATEMENT**

PROJECT            **Western Connecticut State University**  
NAME/NO.:        **Litchfield Residence Hall IT Infrastructure Upgrades**  
                      **DCS Project No. BI-RD 291**

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All bidders are required to file this form, properly completed, WITH THEIR PROPOSAL. Failure of a bidder to answer any question or provide required information may be grounds for the awarding authority to disqualify and reject their bid. If a question or request for information does not pertain to your organization in any way, use the symbol "NA" (Not Applicable). Use additional 8 ½" x 11" sheets with your letterhead as necessary.

1. Indicate exactly the name by which this organization is known:

Name: \_\_\_\_\_

2. How many years has this organization been in business under its present business name?

Years: \_\_\_\_\_

3. How many years has this organization been in business as a General Contractor?

Years: \_\_\_\_\_

4. If this organization has not always been a General Contractor, list the trade(s) that your firm customarily performed prior to the time that you became a General Contractor:

4.1 \_\_\_\_\_

4.2 \_\_\_\_\_

4.3 \_\_\_\_\_

5. Indicate all other names by which this organization has been known and the length of time known by each name:

5.1 \_\_\_\_\_

5.2 \_\_\_\_\_

5.3 \_\_\_\_\_

6. This firm is a:

- Corporation
  - Partnership
  - Sole Proprietorship
  - Joint Venture
  - Other
- 

7. Attach resumes of all supervisory personnel, such as Principals, Project Managers, and Superintendents, who will be directly involved with project on which you are now a bidder. Indicate the number of years of construction experience and number of years of which they were in a Supervisory capacity.

8. List all sub-trades which your firm customarily performs with own employees.

- 8.1 \_\_\_\_\_
- 8.2 \_\_\_\_\_
- 8.3 \_\_\_\_\_
- 8.4 \_\_\_\_\_
- 8.5 \_\_\_\_\_

9. **Trade References:** Names, addresses and telephone numbers of several firms with whom your organization has regular business dealings, (attach separate sheets as necessary):

**10. All** Construction Projects your organization has in process (attach separate sheets using the following format as necessary):

10.1 Specific Title & Location: \_\_\_\_\_

10.2 Contract Amount: \_\_\_\_\_

10.3 Description of your scope of work performed . \_\_\_\_\_

10.4 Owner: \_\_\_\_\_

10.5 Designer: \_\_\_\_\_

10.6 Start Date: \_\_\_\_\_

10.7 Finish Date: \_\_\_\_\_

\*10.8 Any Complaint on Quality or Management \_\_\_\_\_

10.9 Owners Representative: \_\_\_\_\_ (Name) \_\_\_\_\_ Telephone Number

**\*Please Attach A Separate Sheet Explaining Any Negative Entry In This Row.**



**SECTION 00030  
GENERAL CONTRACTOR  
BIDDERS QUALIFICATION STATEMENT  
PAGE 5 OF 6**

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12. Has your organization ever failed to complete a contract, or has any officer or partner of your organization ever been an officer or partner of another organization that failed to complete a contract? If so, indicate the circumstances leading to the project failure and the name of the company which provided the bonding for the failed contract(s):

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13. List all legal or administrative proceedings currently pending or concluded adversely within the last five years which relate to procurement or performance of any public or private construction contracts. (Exclude OSHA violations which are called for elsewhere in this statement).

13.1 Attached:

13.2 N/A:

14. List all willful or serious violations of any Occupational Safety and Health Act (OSHA) or of any standard, order or regulation promulgated pursuant to such act, during the three year period preceding the bid, provided such violations were cited in accordance with the provisions of any State Occupational Safety and Health Act or Occupational Safety and Health Act of 1970. Indicate whether these were abated within the time fixed by the citation or whether the citation was appealed. If appealed what is the status or disposition.

14.1

14.2

15. Has your organization had any criminal convictions related to the injury or death of any employee in the three year period preceding the bid. Please list any such convictions below.

15.1

15.2

15.3

**SECTION 00030  
GENERAL CONTRACTOR  
BIDDERS QUALIFICATION STATEMENT  
PAGE 6 OF 6**

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Dated at \_\_\_\_\_

Signed this \_\_\_\_\_ day of \_\_\_\_\_ 19 \_\_\_\_\_

Name of Organization: \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

Signature \_\_\_\_\_

(Print Name) \_\_\_\_\_

Title \_\_\_\_\_

**Notary Statement:**

Mr./Mrs./Ms. \_\_\_\_\_ being duly sworn

deposes and says that he/she is the \_\_\_\_\_ of  
(Position or Title)

\_\_\_\_\_, and that the answers to the foregoing  
(Firm Name)

questions and all statements therein contained are true and correct.

Subscribed and sworn before me this \_\_\_\_\_ day of \_\_\_\_\_ 19 \_\_\_\_\_

Notary Public \_\_\_\_\_

My Commission Expires \_\_\_\_\_ 19 \_\_\_\_\_

**END OF SECTION**

WESTERN CONNECTICUT STATE UNIVERSITY

**NOTICE REGARDING THE  
STATE OF CONNECTICUT - DEPARTMENT OF LABOR  
PREVAILING WAGE RATES REQUIREMENT**

**Please Note:**

The Department of Labor's Prevailing Wage Rates shall apply to this project.

The Minimum Rates and Classifications for Building Construction listing, as issued by the Department of Labor for this project, will be forwarded to all prospective bidders via addendum as soon as it becomes available.

Thank you.

Facilities Planning & Engineering  
Western Connecticut State University



**NOTICE TO BIDDERS**  
**STATE OF CONNECTICUT**  
**DEPARTMENT OF PUBLIC WORKS**

**1. BIDS AND REJECTION OF BIDS:**

Bids shall be for the complete work as specified and shall include the names of any subcontractors for the four classes of work specified in subsection (a) of Section 4b-93 of the General Statutes of Connecticut as revised, and for each other class of work for which the awarding authority has required a separate section pursuant to said subsection and the dollar amounts of their subcontracts, and the contractor shall be selected on the basis of such bids. It shall be presumed that the bidder intends to perform with its own employees all work in such four classes and such other classes, for which no subcontractor is named. The bidder's qualifications for performing such work shall be subject to review under Section 4b-92 of the General Statutes of Connecticut, as revised.

Every bid which is conditional or obscure, or which contains any addition not called for, shall be invalid; and the awarding authority shall reject every such bid. The awarding authority shall be authorized to waive minor irregularities which he considers in the best interest of the State, provided the reasons for any such waiver are stated in writing by the awarding authority and made a part of the contract file. No such bid shall be rejected because of the failure to submit prices for, or information relating to, any item or items for which no specific space is provided in the bid form furnished by the awarding authority, but this sentence shall not be applicable to any failure to furnish prices or information required by Section 4b-95 of the General Statutes of Connecticut, as revised, to be furnished in the bid form provided by the awarding authority.

Bids shall be publicly opened and read by the awarding authority forthwith. The awarding authority may require in the bid form that the contractor agree to perform a stated, minimum percentage of work with its own forces. The awarding authority may also require the contractor to set aside a portion of the contract for subcontractors who are eligible for set-aside contracts. The awarding authority shall not permit substitution of a subcontractor for one named in accordance with the provisions of said Section 4b-95 or substitution of a subcontractor for any designated sub-trade work bid to be performed by the contractor's own forces, except for good cause. The term "good cause" includes but is not limited to a subcontractor's or, where appropriate, a contractor's: (1) Death or physical disability, if the listed subcontractor is an individual; (2) dissolution, if a corporation or partnership; (3) bankruptcy; (4) inability to furnish any performance and payment bond shown on the bid form; (5) inability to obtain, or loss of, a license necessary for the performance of the particular category of work; (6) failure or inability to comply with a requirement of law applicable to contractors, subcontractors, or construction, alteration, or repair projects; (7) failure to perform its agreement to execute a subcontract under Section 4b-96 of the General Statutes of Connecticut, as revised.

The bid price shall be the price set forth in the space provided on the bid form. No bid shall be rejected (1) because of error in setting forth the name of a subcontractor as long as the subcontractor or subcontractors designated are clearly identifiable, or (2) because the plans and specifications do not accompany the bid or are not submitted with the bid. Failure to correctly state a subcontractor's price shall be cause for rejection of the bid.

Any contractor who violates any provision of said Section 4b-95 may be disqualified from bidding on other contracts that are subject to the provisions of Chapter 60 of the General Statutes of

Connecticut, as revised, for a period not be exceed twenty-four months, commencing from the date on which the violation is discovered, for each violation. The awarding authority shall periodically review the contractor's subcontracts to insure compliance with such provisions, and shall after each such review prepare a written report setting forth his findings and conclusions.

Bids shall be submitted only on the forms furnished for the specific project. In no event will bids or changes in bids made by telephone or telegraph be considered. Any bid form omitting or adding items, altering the form, containing conditional or alternative bids, or without the original signature of the bidder or its authorized representative, will be rejected.

Any bid received after the scheduled closing time for the receipt of bids will be returned to the bidder unopened.

Any bid once deposited with the Department of Public Works may only be withdrawn by letter of request, signed by the depositing bidder and presented to the Chief, Bidding Section, prior to the time of opening of any bid for the project designated or identified project.

## **2. BID SECURITY:**

Each bid must be accompanied by a certified check payable to the order of the Treasurer of the State of Connecticut, or the bid must be accompanied by a bid bond, in the form required by the awarding authority, having as surety thereto such surety company or companies acceptable to the Commissioner of the Department of Public Works and as are authorized to do business in this State, for an amount not less than 10 per cent of the bid. All checks submitted by unsuccessful bidders shall be returned to them after the contract has been awarded.

## **3. FORFEIT OF BID SECURITY:**

Failure of the successful bidder to execute a contract awarded as specified and bid shall result in the forfeiture of the bid bond or certified check.

## **4. ADDENDA AND INTERPRETATIONS:**

No interpretations of the meaning of the plans, specifications or other contract documents will be made orally to any bidder. Every request for such interpretation should be in writing to the awarding authority and to be given consideration must be received at least ten (10) days prior to the date fixed for the opening of bids. Any and all such interpretations and any supplemental instructions will be in the form of written addenda to the specifications which, if issued, will be mailed to all prospective bidders (at the respective addresses furnished for such purposes) not later than five (5) days prior to the date fixed for the opening of bids; failure of any bidder to receive any such addendum or interpretation shall not release any bidder from any obligations under its bid as submitted, provided notice has been sent to the address furnished by such prospective bidder for the transmittal of notices, addenda and interpretations. It shall be the bidder's responsibility to make inquiry as to, and to obtain, the addenda issued, if any.

## **5. EXECUTIVE ORDER NO. THREE:**

This contract is subject to the provisions of Executive Order No. Three of Governor Thomas J. Meskill promulgated June 16, 1971 and, as such, this contract may be canceled, terminated or suspended by the state labor commissioner for violation of or noncompliance with said Executive Order No. Three,

or any state or federal law concerning nondiscrimination, notwithstanding that the labor commissioner is not a party to this contract. The parties to this contract, as part of the consideration hereof, agree that said Executive Order No. Three is incorporated herein by reference and made a part hereof. The parties agree to abide by said Executive Order and agree that the state labor commissioner shall have continuing jurisdiction in respect to contract performance in regard to nondiscrimination, until the contract is completed or terminated prior to completion.

The contractor agrees, as part consideration hereof, that this contract is subject to the Guidelines and Rules issued by the state labor commissioner to implement Executive Order No. Three, and that he will not discriminate in his employment practices or policies, will file all reports as required, and will fully cooperate with the State of Connecticut and the state labor commissioner.

**6. EXECUTIVE ORDER NO. SEVENTEEN:**

This contract is subject to the provisions of Executive Order No. Seventeen of Governor Thomas J. Meskill promulgated February 15, 1973, and, as such, this contract may be canceled, terminated or suspended by the contracting agency or the State Labor Commissioner for violation of or noncompliance with said Executive Order No. Seventeen, notwithstanding that the Labor Commissioner may not be a party to this contract. The parties to this contract, as part of the consideration hereof, agree that Executive Order No. Seventeen is incorporated herein by reference and made a part hereof. The parties agree to abide by said Executive Order and agree that the contracting agency and the State Labor Commissioner shall have joint and several continuing jurisdiction in respect to contract performance in regard to listing all employment openings with the Connecticut State Employment Service.

**7. FOREIGN CORPORATIONS:**

A corporation not organized under the laws of this State that is awarded the contract must comply with the laws of this State regarding the procurement of a certificate of authority to transact business in this State from the Secretary of the State.

**8. SECURITY FOR FAITHFUL PERFORMANCE:**

**8.1.1 Performance Bond**

On or before the contract award date, the successful bidder shall substitute for the certified check or bid bond accompanying its bid an executed performance bond, in the amount not less than 100 per cent of the contract price, conditioned upon the faithful performance of the contract, and having as surety thereto such surety company or companies satisfactory to the Commissioner and as are authorized to transact business in this State.

**8.1.2 Labor and Material Bond:**

At this same time, the successful bidder shall submit a labor and material bond in the amount not less than 100 per cent of the contract price which shall be binding upon the award of the contract to such bidder, with surety or sureties satisfactory to the Commissioner and as are authorized to transact business in this State, for the protection of persons supplying labor or materials in the prosecution of the work provided for in the contract for the use of each such person. Any such bond furnished shall have as principal the name of the successful bidder.

This bond is to be furnished pursuant to Section 49-41 of the General Statutes of Connecticut, as revised.

**The following sections of the General Statutes of Connecticut, as revised, are inserted as information concerning this bond:**

**Sec. 49-41a.** Enforcement of payment by general contractor to subcontractor and by subcontractor to his subcontractors. (a) When any public work is awarded by a contract for which a payment bond is required by section 49-41, the contract for the public work shall contain the following provisions: (1) A requirement that the general contractor, within thirty days after payment to the contractor by the state or a municipality, pay any amounts due any subcontractor, whether for labor performed or materials furnished, when the labor or materials have been included in a requisition submitted by the contractor and paid by the state or a municipality; (2) a requirement that the general contractor shall include in each of its subcontracts a provision requiring each subcontractor to pay any amounts due any of its subcontractors, whether for labor performed or materials furnished, within thirty days after such subcontractor receives a payment from the general contractor which encompasses labor or materials furnished by such subcontractor.

- (b) If payment is not made by the general contractor or any of its subcontractors in accordance with such requirements, the subcontractor shall set forth his claim against the general contractor and the subcontractor of a subcontractor shall set forth its claim against the subcontractor through notice by registered or certified mail. Ten days after the receipt of that notice, the general contractor shall be liable to its subcontractor, and the subcontractor shall be liable to its subcontractor, for interest on the amount due and owing at the rate of one per cent per month. In addition, the general contractor, upon written demand of its subcontractor, or the subcontractor, upon written demand of its subcontractor, shall be required to place funds in the amount of the claim, plus interest of one per cent, in an interest-bearing escrow account in a bank in this state, provided the general contractor or subcontractor may refuse to place the funds in escrow on the grounds that the subcontractor has not substantially performed the work according to the terms of his or its employment. In the event that such general contractor or subcontractor refuses to place such funds in escrow, and the party making a claim against it under this section is found to have substantially performed its work in accordance with the terms of its employment in any arbitration or litigation to determine the validity of such claim, then such general contractor or subcontractor shall pay the attorney's fees of such party.
- (c) No payment may be withheld from a subcontractor for work performed because of a dispute between the general contractor and another contractor or subcontractor.
- (d) This section shall not be construed to prohibit progress payments prior to final payment of the contract and is applicable to all subcontractors for material or labor whether they have contracted directly with the general contractor or with some other subcontractor on the work.

**Sec. 49-42.** Enforcement of right to payment on bond. Suit on bond, procedure and judgment. (a) Any person who performed work or supplied materials for which a requisition was submitted to, or for which an estimate was prepared by, the awarding authority and who does not receive full payment for such work or materials within sixty days of the applicable payment date provided for in subsection (a) of section 49-41a, or any person who supplied

materials or performed subcontracting work not included on a requisition or estimate who has not received full payment for such materials or work within sixty days after the date such materials were supplied or such work was performed, may enforce his right to payment under the bond by serving a notice of claim on the surety that issued the bond and a copy of such notice to the contractor named as principal in the bond within one hundred eighty days of the applicable payment date provided for in subsection (a) of section 49-41a, or, in the case of a person supplying materials or performing subcontracting work not included on a requisition or estimate, within one hundred eighty days after the date such materials were supplied or such work was performed. The notice of claim shall state with substantial accuracy the amount claimed and the name of the party for whom the work was performed or to whom the materials were supplied, and shall provide a detailed description of the bonded project for which the work or materials were provided. If the content of a notice prepared in accordance with subsection (b) of section 49-41a complies with the requirements of this section, a copy of such notice, served within one hundred eighty days of the payment date provided for in subsection (a) of section 49-41a upon the surety that issued the bond and upon the contractor named as principal in the bond, shall satisfy the notice requirements of this section. Within ninety days after service of the notice of claim, the surety shall make payment under the bond and satisfy the claim, or any portion of the claim which is not subject to a good faith dispute, and shall serve a notice on the claimant denying liability for any unpaid portion of the claim. The notices required under this section shall be served by registered or certified mail, postage prepaid in envelopes addressed to any office at which the surety, principal or claimant conducts his business, or in any manner in which civil process may be served. If the surety denies liability on the claim, or any portion thereof, the claimant may bring action upon the payment bond in the superior court for such sums and prosecute the action to final execution and judgment. An action to recover on a payment bond under this section shall be privileged with respect to assignment for trial. The court shall not consolidate for trial any action brought under this section with any other action brought on the same bond unless the court finds that a substantial portion of the evidence to be adduced, other than the fact that the claims sought to be consolidated arise under the same general contract, is common to such actions and that consolidation will not result in excessive delays to any claimant whose action was instituted at a time significantly prior to the motion to consolidate. In any such proceeding, the court judgment shall award the prevailing party the costs for bringing such proceeding and allow interest at the rate of interest specified in the labor or materials contract under which the claim arises or, if no such interest rate is specified, at the rate of interest as provided in section 37-3a upon the amount recovered, computed from the date of service of the notice of claim, provided, for any portion of the claim which the court finds was due and payable after the date of service of the notice of claim, such interest shall be computed from the date such portion became due and payable. The court judgment may award reasonable attorneys fees to either party if upon reviewing the entire record, it appears that either the original claim, the surety's denial of liability, or the defense interposed to the claim is without substantial basis in fact or law. Any person having direct contractual relationship with a subcontractor but no contractual relationship express or implied with the contractor furnishing the payment bond shall have a right of action upon the payment bond upon giving written notice of claim as provided in this section.

- (b) Every suit instituted under this section shall be brought in the name of the person suing, in the superior court for the judicial district where the contract was to be performed, irrespective of the amount in controversy in the suit, but no such suit may be commenced after the expiration of one year after the applicable payment date provided for in subsection (a) of section 49-41a, or, in the case of a person supplying materials or

performing subcontracting work not included on a requisition or estimate, no such suit may be commenced after the expiration of one year after the date such materials were supplied or such work was performed.

- (c) The word "material" as used in section 49-41 to 49-43, inclusive, includes the rental of equipment used in the prosecution of work provided for in the contract.

**9. CONNECTICUT SALES AND USE TAXES:**

All bidders shall familiarize themselves with the current statutes and regulations of the Department of Revenue Services. The tax on materials or supplies exempted by such statutes and regulations shall not be included as part of a bid.

**10. CONTRACTOR'S QUALIFICATIONS:**

All bidders shall file with their bids a statement of qualifications on the appropriate form.

**11. SUBCONTRACTORS:**

As required by the *Bid Proposal Form*, each bidder shall furnish with its submitted bid, and in the place on the bid form provided for such purpose, the names of responsible and qualified subcontractors who are actually to perform the work required by the division or portion of the specifications listed for the base bid. Failure to so list a subcontractor for any division or portion of the specifications will result in the rejection of the entire bid.

**12. WORKING DAY:**

A working day is hereby defined as each consecutive day, including and following the date set for commencement of work, except Saturdays, Sundays and State legal holidays and except those days on which, in the opinion of the awarding authority, the contractor is prevented by inclement weather from proceeding with work on the major items under construction at the then current stage of the work for at least six (6) hours with the usual force employed on these major items, provided, however, that in the event the State directs or permits work to be performed on a Saturday, Sunday or a State legal holiday, then such day shall be considered a working day.

**13. NONDISCRIMINATION AND AFFIRMATIVE ACTION PROVISIONS:**

**This section is inserted in connection with Subsection (a) of Section 4a-60 of the General Statutes of Connecticut, as revised.**

a. For the purposes of this section, "minority business enterprise" means any small contractor or supplier of materials fifty-one percent or more of capital stock, if any, or assets of which is owned by a person or persons: (1) Who are active in the daily affairs of the enterprise, (2) For the purposes of this section, "minority business enterprise" means any small contractor or supplier of materials fifty-one per cent or more of the capital stock, if any, or assets of which is owned who have the power to direct the management and policies of the enterprise and (3) who are members of a minority, as such term is defined in Subsection (a) of Conn. Gen. Statutes. Section 32-9n; and

"good faith" means that degree of diligence which a reasonable person would exercise in the performance of legal duties and obligations. "Good faith efforts" shall include, but not be limited to, those reasonable initial efforts necessary to comply with statutory or regulatory requirements and additional or substituted efforts when it is determined that such initial efforts will not be sufficient to comply with such requirements.

For the purposes of this section, "commission" means the commission on human rights and opportunities.

For the purposes of this section, "public works contract" means any agreement between any individual, firm or corporation and the state or any political subdivision of the state other than a municipality for construction, rehabilitation, conversion, extension, demolition or repair of a public building, highway or other changes or improvements in real property, or which is financed in whole or in part by the state, including, but not limited to, matching expenditures, grants, loans, insurance or guarantees.

b. (1) The contractor agrees and warrants that in the performance of the contract such contractor will not discriminate or permit discrimination against any person or group of persons on the grounds of race, color, religious creed, age, marital status, national origin, ancestry, sex, mental retardation or physical disability, including, but not limited to, blindness, unless it is shown by such contractor that such disability prevents performance of the work involved, in any manner prohibited by the laws of the United States or of the state of Connecticut. The contractor further agrees to take affirmative action to insure that applicants with job-related qualifications are employed and that employees are treated when employed without regard to their race, color, religious creed, age, marital status, national origin, ancestry, sex, mental retardation, or physical disability, including, but not limited to, blindness, unless it is shown by such contractor that such disability prevents performance of the work involved; (2) the contractor agrees, in all solicitations or advertisements for employees placed by or on behalf of the contractor, to state that it is an "affirmative action-equal opportunity employer" in accordance with regulations adopted by the commission; (3) the contractor agrees to provide each labor union or representative of workers with which such contractor has a collective bargaining agreement or other contract or understanding and each vendor with which such contractor has a contract or understanding, a notice to be provided by the commission advising the labor union or workers' representative of the contractor's commitments under this section, and to post copies of the notice in conspicuous places available to employees and applicants for employment; (4) the contractor agrees to comply with each provision of this section and Conn. Gen. Statutes. Sections 46a-68e and 46a-68f and with each regulation or relevant order issued by said commission pursuant to Conn. Gen. Statutes. Sections 46a-56, 46a-68e and 46a-68f; (5) the contractor agrees to provide the commission on human rights and opportunities with such information requested by the commission, and permit access to pertinent books, records and accounts, concerning the employment practices and procedures of the contractor as relate to the provisions of this section and Conn. Gen. Statutes. Section 46a-56. If the contract is a public works contract, the contractor agrees and warrants that he will make good faith efforts to employ minority business enterprises as subcontractors and suppliers of materials on such public works project.

c. Determination of the contractor's good faith efforts shall include but shall not be limited to the following factors: The contractor's employment and subcontracting policies, patterns and practices; affirmative advertising, recruitment and training; technical assistance activities and such other reasonable activities or efforts as the commission may prescribe that are designed to ensure the participation of minority business enterprises in public works projects.

d. The contractor shall develop and maintain adequate documentation, in a manner prescribed by the commission, of its good faith efforts.

e. The contractor shall include the provisions of Subsection b of this section in every subcontract or purchase order entered into in order to fulfill any obligation of a contract with the state and such provisions shall be binding on a subcontractor, vendor or manufacturer unless exempted by regulations or orders of the commission. The contractor shall take such action with respect to any such subcontract or purchase order as the commission may direct as a means of enforcing such provisions including sanctions for noncompliance in accordance with Conn. Gen. Statutes, Section 46a-56; provided, if such contractor becomes involved in, or is threatened with, litigation with a subcontractor or vendor as a result of such direction by the commission, the contractor may request the state of Connecticut to enter into any such litigation or negotiation prior thereto to protect the interests of the state and the state may so enter.

f. The contractor agrees to comply with the regulations referred to in this section as they exist on the date of this contract and as they may be adopted or amended from time to time during the term of this contract and any amendments thereto.

#### 14. NONDISCRIMINATION PROVISIONS REGARDING SEXUAL ORIENTATION:

**This section is inserted in connection with Subsection (a) of Section 4a-60a of the General Statutes of Connecticut, as revised.**

a. (1) The contractor agrees and warrants that in the performance of the contract such contractor will not discriminate or permit discrimination against any person or group of persons on the grounds of sexual orientation, in any manner prohibited by the laws of the United States or of the state of Connecticut, and that employees are treated when employed without regard to their sexual orientation; (2) the contractor agrees to provide each labor union or representative of workers with which such contractor has a collective bargaining agreement or other contract or understanding and each vendor with which such contractor has a contract or understanding, a notice to be provided by the commission on human rights and opportunities advising the labor union or workers' representative of the contractor's commitments under this section, and to post copies of the notice in conspicuous places available to employees and applicants for employment; (3) the contractor agrees to comply with each provision of this section and with each regulation or relevant order issued by said commission pursuant to section 46a-56 of the general statutes; (4) the contractor agrees to provide the commission on human rights and opportunities with such information requested by the commission, and permit access to pertinent books, records and accounts, concerning the employment practices and procedures of the contractor which relate to the provisions of this section and section 46a-56 of the general statutes.

b. The contractor shall include the provisions of Subsection a of this section in every subcontract or purchase order entered into in order to fulfill any obligation of a contract with the state and such provisions shall be binding on a subcontractor, vendor or manufacturer unless exempted by regulations or orders of the commission. The contractor shall take such action with respect to any such subcontract or purchase order as the commission may direct as a means of enforcing such provisions including sanctions for noncompliance in accordance with section 46a-56 of the general statutes; provided, if such contractor becomes involved in, or is threatened with, litigation with a subcontractor or vendor as a result of such direction by the commission,

the contractor may request the state of Connecticut to enter into any such litigation or negotiation prior thereto to protect the interests of the state and the state may so enter.

c. The contractor agrees to comply with the regulations referred to in this section as they exist on the date of this contract and as they may be adopted or amended from time to time during the term of this contract and any amendments thereto.

**15. UNION LABOR:**

Attention is called to the fact that there may be construction work now being carried on at the site at which construction is contemplated being done by union labor. This fact must be kept in mind by all bidders.

**16. LABOR MARKET AREA:**

All bidders shall have read Sections 31-52 and 31-52a of the General Statutes of Connecticut, as revised. These sections relate to the preference of State citizens and the preference of residents of the labor market area in which the work under the contract is to be done and the penalties for violations thereof.

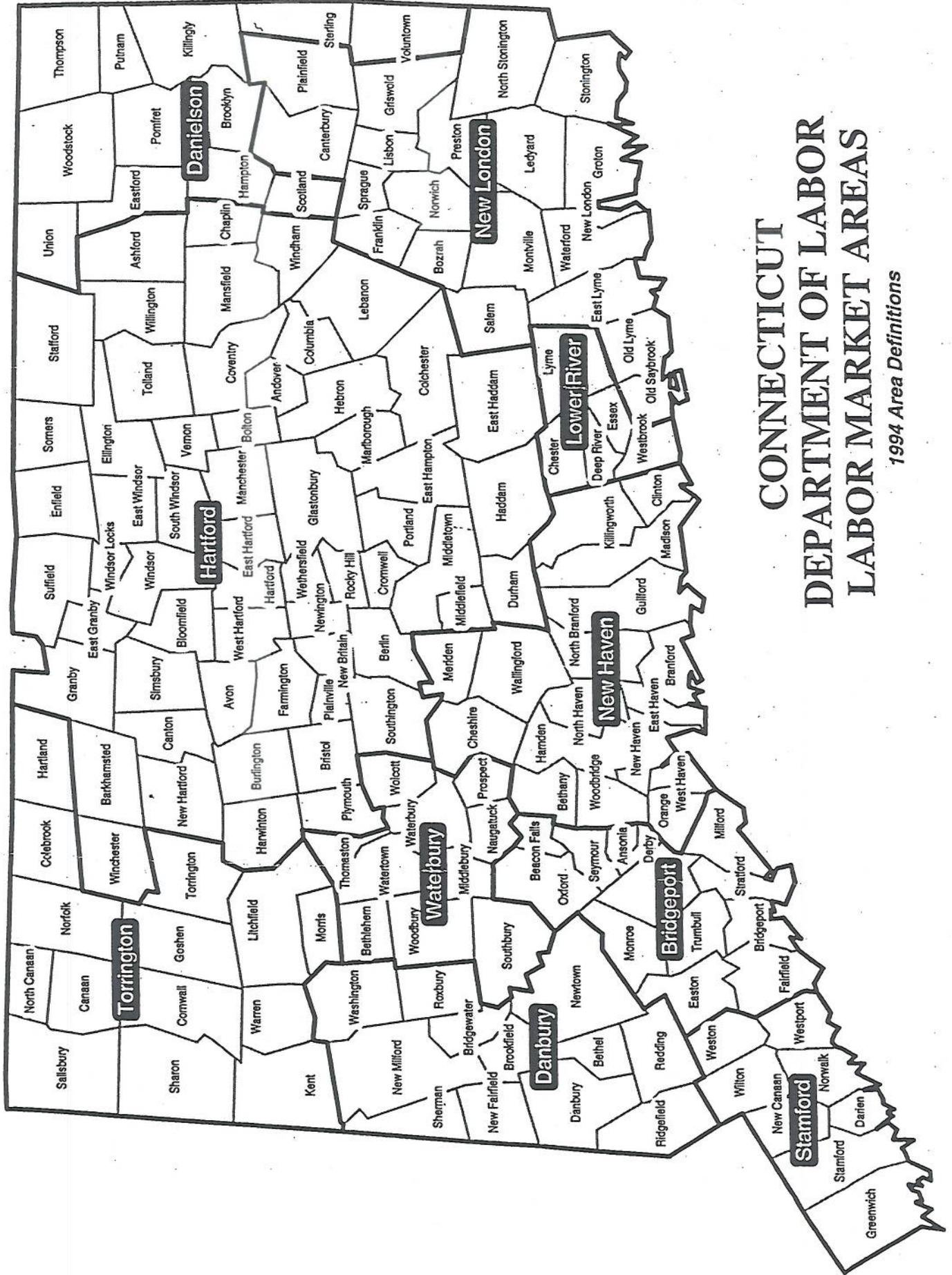
In order to avoid violations by the contractor and to cooperate with and assist the State in the implementation of the statutory mandates, any bidder awarded a contract with the State shall be required to provide the State with the following information:

- 16.1 The names and addresses of employees utilized by the contractor and by its subcontractors and how long each such employee has resided in Connecticut.
- 16.2 How long each employee has resided in the labor market area, as established by the State Labor Commissioner, in which the work under the contract is to be done. Labor market areas are indicated on the end of this section.
- 16.3 Within thirty (30) days after the start of work, the contractor shall submit a signed statement setting forth the procedures the contractor and its subcontractors have taken to assure that they have sought out qualified residents of the labor market area. Also, the statement shall include information as to how many persons were considered for employment and how many were actually hired. Such procedures will include, but not be limited to, obtaining names of available persons from area Employment Security Offices.
- 16.4 In the same manner as item (16.3) above, the statement shall indicate the steps taken to assure that the Contractor and its Subcontractors have sought out qualified residents of this State.
- 16.5 The contractor shall cooperate with and provide information to the construction supervisor or inspector of the State assigned to collect and verify the information required. The State may request that all such information be updated during the term of the contract at reasonable times.
- 16.6 All such information gathered and compiled by the State shall be forwarded to the Labor Commissioner.

**Pursuant to Section 31-52b of the General Statutes of Connecticut, as revised:**

"The provisions of sections 31-52 and 31-52a shall not apply where the state or any subdivision thereof may suffer the loss of revenue granted or to be granted from any agency or department of the federal government as a result of said sections or regulative procedures pursuant thereto."

However, no exception shall be determined to be applicable unless stated in writing by the Commissioner of the Department of Public Works.



# CONNECTICUT DEPARTMENT OF LABOR LABOR MARKET AREAS

*1994 Area Definitions*



**WORKING PROCEDURES DURING CONSTRUCTION****SECTION I – GENERAL**

- A. Contact between the budgeted agency and the Architect/Engineer will be through the Construction Administrator assigned to the project. Contact between the Architect and the Contractor will be through the Construction Administrator, except on matters relating to shop drawings (Section 5 below); approval of materials (Section 6); approval of samples (Section 7).
- B. The control, field supervision, and inspection of this project through the date of guarantee required by the General Conditions will be conducted by the University or its designated representative, as directed by the University Architect delegated by the Commissioner to the Director of Construction Services, whose project organization includes the following:
- (1) Director of Facilities Planning & Engineering/University Representative
  - (2) Associate Director/Assistant Director of Facilities Planning & Engineering
  - (3) Construction Administrator/University Representative/ Project Manager
  - (4) Architect/ Engineer
- C. The Construction Administrator assigned to the project is responsible to his superiors for the control, field supervision, and inspection of the project. The Contractor and the Architect/Engineer submit to the Construction Administrator a separate written statement on each question of contract interpretation, contract discrepancy, contract change, or on any question concerning a deviation from the contract requirements.

**SECTION 2 – CORRESPONDENCE**

- A. Standard practice is to be as follows:
1. All correspondence must bear the correct title and assigned contract number for purposes of identification.
  2. For ease in filing, a separate letter must be issued for each subject. SEVERAL SUBJECTS ARE NOT TO BE COMBINED IN ONE LETTER.
  3. All shop drawings, samples, etc., must be accompanied by a transmittal letter, which should be clear as to what is being transmitted.
  4. Persons and/or firms receiving copies shall be noted on all copies of each letter. A check mark is to be placed beside each name so as to designate to whom the copy belongs.
  5. The following procedures as to be followed:
    - a. A copy of every letter addressed by the Architect/Engineer to the Construction Administrator (and vice versa) is to be sent to the Director of Facilities Planning & Engineering.
    - b. A copy of every letter addressed by the Architect/Engineer to the Contractor (and vice versa) is to be sent to the Director of Facilities Planning and Engineering and Construction Administrator.

- c. A copy of every letter addressed by the Contractor to the Construction Administrator (and vice versa) is to be sent to the Director of Facilities Planning and Engineering and the Architect/Engineer.
  - d. A copy of every letter addressed by either the Construction Administrator or the Architect/Engineer to the budgeted agency is to be sent to the Director of Facilities Planning and Engineering.
- B. All correspondence addressed to the Director of Facilities Planning & Engineering is to be sent to Western Connecticut State University, 181 White Street, Danbury, CT 06810. Letters shall be sent direct and with the least possible delay.

### **SECTION 3 – JOB DRAWINGS, DETAIL DRAWINGS, ETC.**

- A. The Architect/Engineer will furnish four (4) prints, three (3) to be sent by transmittal letter directly to the Construction Administrator on the job and one (1) directly to the Director of Facilities Planning and Engineering with one (1) copy of the transmittal letter. A copy of the transmittal letter only is to be sent directly to the Director of Facilities Planning & Engineering, and three (3) prints are to be sent directly to the Contractor together with a copy of the same transmittal letter.

### **SECTION 4 – APPROVAL OF SUBCONTRACTORS**

- A. Initial submission shall be as prescribed in the proposal attached to and made a part of the contract. Subsequent submission(s), on the Contractor's letterhead, shall include the name of the proposed subcontractor(s), what services they will be providing, and the contract amount. This information is sent to the Director of Facilities Planning and Engineering, with a copy to the Architect/Engineer, and the Construction Administrator. The Contractor will be notified by the University on approvals of all subcontractors.

### **SECTION 5 – SHOP DRAWINGS**

- A. The Contractor shall forward, after detailed checking in his office, with a transmittal letter, three (3) prints of each shop drawing to the Architect/Engineer for initial checking, following the procedure as outlined in paragraph 2 above. At the same time, the Contractor shall send a copy of the transmittal letter to the Director of Facilities Planning and Engineering, and one (1) copy to the Construction Administrator, assigned to the project.
- B. After corrections have been made, or when the shop drawings are finally approved, the Contractor is to furnish a total of seven (7) prints of each drawing to the Architect/Engineer. For sprinkler shop drawings, provide a total of ten (10) prints. All prints to include the project name and DCS project number.
- C. Noting his action on shop drawings, the Architect/Engineer shall:
- 1. Retain two (2) sets of drawings for his files.
  - 2. Return two (2) sets to the Contractor with a transmittal letter.
  - 3. Send one (1) set to the District Construction Supervisor together with a copy of the transmittal letter.

4. Send two (2) sets to the Construction Administrator, with one (1) copy of the transmittal letter.
5. In the case of fire sprinkler systems only, add (3) sets of final approved shop drawings to make a total of (10) sets. Two (2) sets will be sent to the States Insurance Carrier. One (1) set (if the building exceeds the threshold limit) shall be sent to the State Fire Marshals office for ultimate approval and compliance. The sets submitted to the Fire Marshal and Insurance Carrier shall include hydraulic calculations, and manufacturers' specification sheets for all sprinkler heads, backflow preventors, and fire pumps (including pump curves).

#### **SECTION 6 – APPROVAL OF MATERIALS**

- A. The Contractor shall submit directly to the Architect/Engineer for approval a list of all materials and equipment proposed for use on the project, following the procedure outlined in paragraph 2 above. Approval or disapproval will be handled as follows. Note that there are three (3) broad classifications to be considered:
  1. Action on any material or equipment which is named by brand in the specifications will be taken by the Architect/Engineer.
  2. When the Contractor proposes an equal for any specified material or equipment, he shall submit to the Architect/Engineer full information (manufacturer's brochure, etc.) covering the item proposed. The Architect/Engineer will evaluate the data and submit three (3) copies of the information along with his recommendations to the Director of Facilities Planning and Engineering, who will inform the Contractor of the decision.
  3. If the Contractor proposes material or equipment that deviates from the specifications (a substitution to be handled by a change order), he shall submit full information about the item, and a credit to the owner, where applicable, supported by the manufacturer's original quotation for specified material and that for the substitution. The Architect/Engineer will review this data, and submit three (3) copies of the information along with his recommendations to the Director of Facilities Planning and Engineering, who will notify the Contractor of the decision.
  4. Time limitations for making submittals on equals or for substitutions, shall be in accordance with Article 14 of the General Conditions.
- B. Selection of paint colors and colors of interior finished materials shall be made by the Architect/Engineer, who will be responsible for obtaining approval of the using agency. After receiving this approval, he will notify the Contractor.

#### **SECTION 7 – APPROVAL OF SAMPLES**

- A. Procedure on approval of samples will be the same as for materials; however, in most cases, samples delivered by the Contractor to the job site will be examined there and will be held there until completion of the work. Approval by the Architect/Engineer is to be in writing following procedure outlined in Section 6A. (2).

**SECTION 8 – REPORTS ON WORK AT SITE**

- A. The diary kept by the Construction Administrator on the job will be available for the Architect/Engineer. The CC/S will also keep a list of questions for determination by the Architect/Engineer.
- B. Observation reports by the Architect/Engineer are also required.

**SECTION 9 – INSURANCE CERTIFICATES**

- A. All certificates, in triplicate, will be sent to the Contracts Supervisor of the Contract Section.

**SECTION 10 – INSTRUCTIONS ON THE WORK**

- A. All instructions on the job will be given the Contractor by the Construction Administrator, who will make any decisions not in conflict with the plans and specifications. He will advise the Architect/Engineer at all times as to actions taken. On matters of major importance, the Construction Administrator will consult with the Director of Facilities Planning and Engineering and the Architect/Engineer and obtain clearance before giving instructions to the Contractor.
- B. On engineering projects, each Architect/Engineer will keep the Engineering Section of the Department of Construction Services advised concerning instructions and interpretations given by him, and in no case will authorize engineering changes in the plans or specifications without receiving prior approval of the Engineering Section.
- C. Deviations from plans and specifications will be handled by a change order.

**SECTION 11 – SCHEDULE OF VALUES OF THE WORK**

- A. The Contractor shall prepare, on forms furnished by the Department of Construction Services, one (1) pencil copy of the schedule of values, for various parts of the work, broken down as directed, aggregating the total sum of the contract, and submit to the assigned Construction Administrator for review.
- B. Following this review and initialing by the Mechanical/Electrical Specialist, if applicable, the Construction Administrator will transmit the initialed copy of the schedule of values to the Hartford office for further processing.
- C. After final approval, the Hartford office will notify the Contractor to submit the final typed schedule of values in the number of copies required.
- D. Under no circumstances is the Contractor to submit a requisition for partial payment until the schedule of values has been approved.

**SECTION 12 – REQUISITIONS**

- A. The Contractor's requests for partial payment shall be itemized to correspond with the approved schedule of values. Requisitions shall be submitted directly to the Construction Administrator for approval and processing.
- B. Requisitions for requests for partial payment shall be submitted once a month directly to the Construction Administrator assigned to the project.

**SECTION 13 – CHANGE ORDERS**

- A. Any change for improvement of the work or to provide for field conditions suggested by the budgeted agency, the Department of Construction Services, the Contractor, or the Architect/Engineer, will be handled by the Construction Administrator assigned to the project. The Construction Administrator is to determine the necessity for the change and clear with the Architect/Engineer and the budgeted agency. He may ask the Architect/Engineer to prepare any documents necessary to process the change, and he will obtain from the Contractor any estimate covering additions to or deductions from the contract price.
- B. Changes requested by the agency must first be addressed by the agency head to the Commissioner of Construction Services for consideration and approval before any action will be taken by the Construction Administrator.
- C. To expedite change orders during the course of construction, proposals are to be submitted directly to the assigned Construction Administrator (in the number of copies requested) with a copy to the Director of Facilities Planning and Engineering, the District Construction Supervisor, and the Architect/Engineer.
- D. After review and comment by the budgeted agency, the request for change order, with all back-up, including the architect's/engineer's recommendations and a definite statement of need and/or reason for the change, will be submitted by the Construction Administrator to the central office of the Department of Construction Services. On approval by the Commissioner, a change order to the contract will be issued authorizing the change.
- E. The amount of compensation to be paid for additional work shall be in accordance with Article 13 of the General Conditions.
- F. Lump sum proposals are to contain certain quantities and unit prices and be itemized in sufficient detail to give the Department of Construction Services a basis for checking. When a subcontractor's price is included in the general contractor's proposal, the subcontractor's breakdowns to be included. Credits must be deducted before the percentage can be applied.
- G. Every proposal is to state whether or not extension of time is required, and if so, of how many days.
- H. In the event of disagreement between the Contractor and the Cost Review Section as to the amount of the proposal, the Cost Review Section will take the matter up with the Contractor through the Construction Administrator on the job or, if more expedient, directly with the Contractor.
- I. In no case is a Contractor to proceed without an approved Change Order, or if necessary, to expedite the work, a proceed order authorized by the Commissioner of the Director of Construction, as provided in Articles 13 and 26 of the General Conditions. This shall not, however, affect the power of the Contractor to act in a case of emergency, threats of injury to persons, damage to the work or an adjacent property.

**END**





**OSBI/OSFM INSPECTION REQUEST & REPORT**

**All inspections require 48-hour notice and shall be e-mailed to: OSBI.Inspections@ct.gov**

**(This portion to be completed by Construction Administrator)**

Project Name:

Building Permit No.:

Project No:

Date of Request Inspection:

Time:

Requested by:

Areas to be inspected:

Pre-inspection conducted by construction administrator. (Initials):

**(OSBI Use only below this line)**

<input type="checkbox"/> INSPECTION  <input type="checkbox"/> RE-INSPECTION RE-INSPECTION NO.:	INSPECTION DATE:  INSPECTED BY:
ISSUE DATE:	ISSUED TO:

**INSPECTION SUMMARY (Select all that apply)**

- APPROVED**                                      Close area. No further action required.
- PARTIALLY APPROVED**                      List approved locations in comments below.
- FAILED**    Remedial work indicated. Re-inspection required.\*
- ABORTED**    Area not ready for inspection. Re-inspection required.\*
- INFORMATION REQUIRED**                      For conducting inspection. (Specify below.)
- OTHER**    Specify below.
- ATTACHMENTS**                                    Additional report logs attached; i.e., fire damper, pipe test, etc.

\*The number of re-inspections will be tracked for OSBI use.

**ADDITIONAL EXPLANATORY COMMENTS:** See back of form.





## OSBI Required Inspections

Per Section 109.3 of the State Building Code, the following building code inspections are required on State construction projects under the jurisdiction of the Office of the State Building Inspector:

- **Footing and foundation inspections.** Footing and foundation inspections shall be made prior to placing concrete after required forms and reinforcement are in place and ready for inspection.
- **Concrete slab and under-floor inspection.** Concrete slab and under-floor inspections shall be made after in-slab or under-floor reinforcing steel and building service equipment, conduit, piping accessories and other ancillary equipment items are in place, but before any concrete is placed or floor sheathing installed, including the subfloor.
- **Frame inspection.** Framing inspections shall be made after the roof deck or sheathing, all framing, fire-blocking and bracing are in place and pipes, chimneys and vents to be concealed are complete and the rough electrical, plumbing, heating wires, pipes and ducts are approved.
- **Fire-resistant penetrations.** Protection of joints and penetrations in fire-resistance-rated assemblies shall not be concealed from view until inspected and approved.
- **Energy efficiency inspections.** Inspections shall be made to determine compliance with the International Energy Conservation Code and shall include, but not be limited to, inspections for: envelope insulation R and U values, fenestration U value, duct system R value, and HVAC and water-heating equipment efficiency.
- **Electrical.** All electrical work shall be inspected prior to concealment. This includes underground conduit prior to burial; in-wall and above ceiling electrical prior to coverings; and under slab conduit prior to concrete. Notification shall be given for all testing of electrical systems including emergency/standby power systems, emergency lighting, fire pumps and fire alarm systems. Electrical panels and equipment shall be inspected prior to energizing. Inspections are required for temporary power to construction trailers or offices.
- **Plumbing/Mechanical.** All piping and mechanical systems shall be inspected prior to concealment. Notification shall be given for testing of all piping systems and smoke testing of ductwork for kitchen hood exhaust systems. All ductwork shall be inspected prior to being insulated. All fire dampers and smoke dampers shall be tested with the Office of State Building Inspector (OSBI) witnessing tests. All mechanical equipment shall be inspected prior to energizing. Equipment will be inspected for compliance to both code requirements and the manufacturer's installation requirements.
- **Other inspections.** In addition to the inspections specified above, the building official is authorized to make or require other inspections of any construction work to ascertain compliance with the provisions of the State Building Code.
- **Special inspections.** As required by the Statement of Special Inspections required through Section 1704.

cont./



- **Final inspection.** The final inspection shall be made after all work required by the building permit is completed.

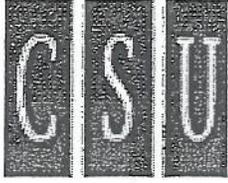
This list is offered as a guide to when an inspection should be scheduled. Basically, **an inspection is required prior to concealing work regulated by code or energizing equipment.** If there is a doubt, please call our office and we will clarify.

In addition, the Office of the State Building Inspector encourages the scheduling of inspections for initial installations of accessible building elements (such as grab bars, sinks, dispensers, etc.) to avoid relocating of elements for code compliance. The same is true for items such as handrails, guards, required signage, etc.

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# Connecticut State University System



Central Connecticut State University  
Eastern Connecticut State University  
Southern Connecticut State University  
Western Connecticut State University  
System Office

## STANDARD TERMS AND CONDITIONS

### I. DEFINITIONS

The following words, when used herein, shall have the following meanings:

1. "Contract" shall mean any agreement negotiated by and between CSU and the contractor selected by CSU as the result of a request for proposal, request for quotation, or request for bid, including, but not limited to, a personal service agreement or purchase order.
2. "CSU" shall refer to the Connecticut State University System, which is comprised of Central Connecticut State University, Eastern Connecticut State University, Southern Connecticut State University, Western Connecticut State University and the System Office, collectively and individually, as the context requires.
3. "Person" shall mean an individual, partnership, corporation or other business entity, as the context requires.
4. "Proposal" shall mean a response to a request for proposal, request for bid, or request for quotation.
5. "Proposer" shall mean a contractor that submits a response to a request for proposal, request for bid, or request for quotation.
6. "RFP" shall mean a request or invitation for proposal, bid, or quotation, as applicable.

### II. TERMS AND CONDITIONS RELATED TO REQUESTS FOR PROPOSALS

#### A. General Conditions

1. CSU reserves the right to amend or cancel an RFP prior to the date and time for the opening of proposals. CSU, in its sole discretion, reserves the right to accept or reject any and all proposals, in whole or in part, and to waive any technicality in any proposal submitted, and to accept any part of a proposal deemed to be in the best interest of CSU.
2. Proposals received from proposers debarred by the State of Connecticut will not be considered for award.
3. CSU does not commit to specific volumes of activity, nor does it guarantee the accuracy of statistical information provided in the RFP. Such information is supplied to proposers for reference only.
4. All responses to the RFP shall be and remain the sole property of CSU.
5. Each proposer shall bear all costs associated with proposer's response to an RFP, including, but not limited to, the costs of any presentation and/or demonstration required by CSU. In addition, answers or clarifications sought by CSU arising out of or in connection with the proposal shall be furnished by the proposer at the proposer's expense.

6. CSU reserves the right to negotiate, as it may deem necessary, with any or all of the proposers that submit proposals.
7. Any alleged oral agreement or arrangement made by any proposer with CSU or any employee thereof shall not be binding.

#### B. Submission of Proposals

1. Proposals must be submitted on forms supplied by CSU. Telephone, facsimile, or email proposals will not be accepted in response to an RFP.
2. The time and date proposals are to be received and opened are stated in each RFP issued by CSU. Proposals received in the applicable CSU purchasing department after the date and time specified in the RFP will be returned to the proposer unopened. Proposal amendments received by CSU after the time specified for opening of proposals shall not be considered.
3. All proposals must be addressed to the location designated in the RFP. Proposal envelopes must clearly state the proposal number as well as the date and time of the opening of the proposals, as stated in the RFP. The name and address of the proposer must appear in the upper left hand corner of the envelope.
4. Proposals must be computer prepared, typewritten or handwritten in ink. Proposals submitted in pencil will be rejected.
5. Proposers must answer all the questions set forth in the RFP using the outline and numbering scheme set forth therein. Proposers must furnish all information requested in the RFP and supply all materials required for consideration. Failure of the proposer to answer all questions and supply all information and materials requested may be grounds for rejection of the proposal.
6. All proposals must be signed by a person duly authorized to sign proposals on behalf of the proposer. All signatures on the proposal must be original. Proposals bearing stamp signatures will be rejected. Unsigned proposals will be rejected.
7. Alterations or corrections to the proposal must be initialed by the person signing the proposal or his or her authorized designee. All initials on alterations or corrections to the proposal must be original. In the event that an authorized designee initials an alteration or correction, the proposer must submit a written authorization from the proposal's signatory to the authorized designee, authorizing the designee to make the alteration or correction. Failure to submit such an authorization shall result in rejection of proposal as to those items altered or corrected and not initialed.

8. Conditional proposals are subject to rejection in whole or in part, in the sole discretion of CSU. A conditional proposal is defined as one that limits, modifies, expands or supplements any of the terms and conditions and/or specifications of the RFP.
  9. Alternate proposals will not be considered by CSU, unless otherwise noted on the RFP or on the proposal form. An alternate proposal is defined as one that is submitted in addition to the proposer's primary response to the RFP.
  10. CSU does not sponsor any one manufacturer's products, but lists equipment by name and model number to designate the quality and performance level desired. Proposers may propose substitutes similar in nature to the equipment specified. The substitute must, in the sole determination of CSU, be equal in quality, durability, appearance, strength and design to the equipment or product specified in the RFP, or offer a clear advantage to CSU because of improved or superior performance. All proposals including equipment or product substitutes must be accompanied with current descriptive literature on, and data substantiating, the equal or superior nature of the substitute. All final decisions concerning substitutes will be made by CSU prior to any award. The word substitute shall not be construed to permit substantial departure from the detailed requirements of the specifications.
  11. Each proposer's prices must be firm for a period up to 120 days from date of the opening of proposals. Prices must be extended in decimal, not fraction, must be net, and must include transportation and delivery charges, fully prepaid by the contractor, to the destination specified in the proposal, and subject only to cash discount.
  12. Pursuant to Section 12-412 of the Connecticut General Statutes, the State of Connecticut is exempt from the payment of excise, transportation and sales taxes imposed by the Federal Government and/or the State. Accordingly, such taxes must not be included in proposal prices.
  13. If there is a discrepancy between a unit price and an extended price, the unit price will govern.
  14. By submitting a proposal, the proposer asserts that the offer and information contained therein is in all respects fair and without collusion or fraud and was not made in connection with any competing proposer's submission of a separate response to the RFP. By submitting a proposal, the proposer further asserts that it neither participated in the formation of CSU's solicitation development process nor had any knowledge of the specific contents of the RFP prior to its issuance, and that no employee of CSU participated directly or indirectly in the preparation of the proposer's proposal.
  15. It is the proposer's responsibility to check the website of the State of Connecticut Department of Administrative Services ([www.das.state.ct.us/Purchase/Portal/Portal\\_Home.asp](http://www.das.state.ct.us/Purchase/Portal/Portal_Home.asp)) for changes prior to the proposal opening. It is the responsibility of the proposer to obtain all information related to proposal submission including, without limitation, any and all addenda or supplements required.
  16. Any person contemplating submitting a proposal who is in doubt as to the true meaning of, or is in need of clarification of, any part of the RFP or the specifications set forth therein, must submit a written request for clarification to CSU. The proposer may rely only upon a response to a request for clarification set forth in writing by CSU.
  17. Proposals for the provision of services must include the cost of obtaining all permits, licenses, and notices required by the city or town in which the services is to be provided, and the State and Federal governments..
18. Each proposer must complete and submit with its proposal the following non-discrimination and affirmative action forms: the Notification to Proposers, Contract Compliance, and EEO-1. It shall not be sufficient to declare or state that such forms are on file with the State of Connecticut. Failure to include the required forms shall result in rejection of the proposal.
- C. Samples
    1. Samples, when required by the RFP, must be submitted strictly in accordance with the requirements of the RFP.
    2. Any and all required samples shall be furnished by the proposer at no cost to CSU. All samples, unless otherwise indicated, will become the property of CSU and will not be returned to the proposer unless the proposer states in the proposal that the sample's return is requested. A sample will be returned on the request of the proposer if the sample has not been rendered useless or beyond its useful life. The proposer must pay the costs associated with the return of any sample. Samples may be held by CSU for comparison with actual product deliveries.
    3. The making of chemical and physical tests of samples submitted with proposals shall be made in the manner prescribed by CSU.
  - D. Bonding Requirements / Guaranty or Surety
    1. If required by this RFP, the proposal must be accompanied by a bid bond or a certified check in an amount that is ten percent (10%) of the bid amount. The bid bond must be executed by an insurance company licensed to do business in the State of Connecticut. Certified checks must be made payable to CSU or the appropriate CSU University.
    2. The proposal bond must be executed by the proposer as follows:
      - (a) If the proposer is a corporation - must be signed by an official of the corporation above his or her official title, and the corporate seal must be affixed over the signature;
      - (b) If the proposer is a partnership - must be signed by a general partner;
      - (c) If the proposer is an individual - must be signed by the individual and indicate that he or she is "doing business as . . . ."
    3. The surety company executing the bond or countersigning must be licensed in Connecticut and the bond must be signed by an official of the surety company with the corporate seal affixed over his or her signature. Signatures of two witnesses for both the principal and the surety must appear on the bond.
- ### III. CONTRACT AWARD
1. All proposals properly submitted will be opened and read publicly. Upon award, the proposals are subject to public inspection. CSU will not prepare abstracts of proposals received for distribution, nor will information concerning the proposals received be conveyed by telephone.
  2. Award will be made to the lowest responsible qualified proposer who complies with the proposal requirements. Price alone need not be the sole determining factor for an award. Other criteria, listed in the RFP, may be considered by CSU in the award determination.
  3. CSU reserves the right to grant an award and/or awards by item, or part thereof, groups of items, or all items of the proposal and to waive minor irregularities and

- omissions if, in CSU's judgment, the best interests of CSU or the State of Connecticut will be served.
4. CSU reserves the right to correct inaccurate awards resulting from its administrative errors.
  5. The Award Notice and Offer (to enter into a formal contract) shall be sent to the awarded proposer by first class certified mail, return receipt requested, to the address provided in the awarded proposal, or by overnight courier. The Notice and Offer shall constitute an offer by CSU to enter into negotiations to come to a formal contract agreement. If the proposer, within ten (10) business days of receipt of said Notice and Offer, declines to begin contract negotiations, then the offer to negotiate a contract may be withdrawn and an offer to negotiate a contract extended to the next lowest responsible qualified proposer, and so on until a contract is negotiated and executed.
  6. Each proposal submitted shall constitute an offer by the proposer to furnish any or all of the commodities or services described therein at the prices given and in accordance with conditions set forth in the proposal, the RFP, and these "Standard Terms and Conditions." Acceptance and resulting contract formation shall be in a formal written document authorized by CSU's Purchasing Department and where applicable, approved by the Attorney General, and shall comprise the entire agreement between the proposer and CSU.
- IV. TERMS AND CONDITIONS RELATED TO CONTRACT WITH SUCCESSFUL PROPOSER**
- By submitting a response to the RFP, the proposer agrees that any contract negotiated between it (if the successful proposer), as contractor, and CSU may contain the following provisions, as deemed applicable by CSU:
- A. General Conditions**
1. Any product developed and accepted by CSU under a contract awarded as a result of an RFP shall be sole property of CSU, unless stated otherwise in the contract.
  2. Data collected or obtained by the contractor in connection with the performance of the contract shall not be shared with any third party without the express written approval of CSU.
  3. The contractor shall defend, indemnify and hold harmless CSU, its officers and employees, against any and all suits, actions, legal or administrative proceedings, claims, demands, damages, liabilities, monetary loss, interest, attorney's fees, costs and expenses of whatsoever kind or nature arising out of the performance of the agreement, including those arising out of injury to or death of contractor's employees or subcontractors, whether arising before, during or after completion of the services thereunder and in any manner directly or indirectly caused, occasioned or contributed to in whole or in part, by reason of any act, omission, fault or negligence of contractor or its employees, agents or subcontractors. Without limiting the foregoing, the contractor shall defend, indemnify and hold CSU and the State of Connecticut harmless from liability of any kind for the use of any copyright or un-copyrighted composition, secret process, patented or unpatented invention furnished or used in the performance of the contract. This indemnification shall be in addition to the warranty obligations of the contractor and shall survive the termination or cancellation of the contract or any part thereof.
  4. The contractor shall: (i) guarantee its products against defective materials and workmanship; (ii) repair damage of any kind, for which it is responsible, to CSU's premises or equipment, to its own work or to the work of other contractors; (iii) obtain and pay for all applicable licenses, permits, and notices; (iv) give all notices and comply with all requirements of the municipality in which the service is to be provided and of the State and federal governments; and (v) carry proper and sufficient insurance to protect the State from loss.
  5. The contract shall be interpreted and governed by the laws of the State of Connecticut, without regard to its principles of conflicts of laws.
  6. The contractor agrees that it shall be subject to and abide by all applicable federal and state laws and regulations.
  7. The contractor agrees that it shall comply with Section 4a-60 of the Connecticut General Statutes and with Executive Orders Nos. 3, 16, 17 and 7B.
  8. The contractor agrees that the sole and exclusive means for the presentation of any claim against the State of Connecticut, the Connecticut State University or the Board Of Trustees arising from a contract with CSU, shall be in accordance with the provisions of Chapter 53 of the Connecticut General Statutes (Claims Against the State) and that no additional legal proceedings will be initiated in any state or federal court in addition to, or in lieu of, said Chapter 53 proceedings.
  9. The contractor agrees that CSU shall have and retain sole and exclusive right and title in and to the forms, maps, and/or materials produced for CSU pursuant to the contract, including all rights to use, distribute, sell, reprint, or otherwise dispose of same. The contractor further agrees that it shall not copyright, register, distribute, or claim any rights in or to said maps and/or materials or the work produced under the contract.
  10. The contractor or subcontractor, as applicable, shall offer and agree to assign to CSU all rights, title and interest in and to all causes of action it may have under Section 4 of the Clayton Act, 15 U.S.C. 15, or under Chapter 624 of the general statutes, arising from the purchase of services, property or intangibles of any kind pursuant to a public purchase contract or subcontract; such assignment shall be made and become effective at the time the contract is executed by the parties, without further acknowledgment by them.
  11. The contractor shall not assign or otherwise dispose of the contract or its right, title or interest therein, or its power to execute such contract, to any other person without the prior written consent of CSU.
  12. CSU reserves the right to inspect commodities for conformance with proposal specifications. When commodities are rejected by CSU, said commodities shall be removed by the contractor, at the contractor's expense, from the CSU premises within forty-eight (48) hours after notification of such rejection, unless public health and safety require immediate destruction or other disposal of such rejected delivery. Rejected items left longer than forty-eight (48) hours shall be considered abandoned by the contractor and CSU shall have the right to dispose of them as its own property.
  13. If any provision, term or condition of the contract is prohibited, invalid, or unenforceable then that provision, term or condition shall be ineffective to the extent of the prohibition, invalidity, or prohibition without invalidating the remaining provisions, terms and conditions unless it materially alters the nature or intent thereof.
  14. Should the terms of any purchase order or invoice issued in connection with the contract conflict with the

terms of the contract, the terms of the contract shall prevail.

15. Failure of the contractor to deliver commodities or perform services as specified in the contract will constitute authority for CSU to purchase these commodities or services on the open market. The contractor shall promptly reimburse CSU for excess costs incurred by CSU due to these purchases, and these purchases shall be deducted by CSU from the quantities contracted for.
16. No right or duty, in whole or in part, of the contractor under the contract may be assigned or delegated without the prior written consent of CSU. The subcontracting or assignment of any of contractor's obligations under the contract to a subcontractor shall require the prior written approval of CSU.
17. Upon termination of the contract by CSU, the contractor shall both immediately discontinue all services (unless the notice directs otherwise) and deliver to CSU all data, drawings, specifications, reports, estimates, summaries, and such other information and materials as may have been accumulated by the contractor in performing its duties under the contract, whether completed or in progress. All such documents, information, and materials shall become the property of CSU.
18. The State of Connecticut shall assume no liability for payment for services under the terms of the contract until the contractor is notified that the contract has been accepted by CSU and, if applicable, approved by the Office of Policy and Management ("OPM") or the Department of Administrative Services ("DAS") and by the Attorney General of the State of Connecticut.

#### B. Insurance

1. Before commencing to perform services pursuant to the contract, the contractor shall obtain, at its own cost and for the duration of the contract, the following insurance:
  - (a) Commercial General Liability: \$1,000,000 combined single limit per occurrence for bodily injury, personal injury and property damage. Coverage shall include Premises and Operations, Independent Contractors, Products and Completed Operations, Contractual Liability and Broad Form Property Damage coverage. If a general aggregate is used, the general aggregate limit shall apply separately to the project or the general aggregate limit shall be twice the occurrence limit.
  - (b) Automobile Liability: \$1,000,000 combined single limit per accident for bodily injury. Coverage extends to owned, hired and non-owned automobiles. If the contractor does not own an automobile, but one is used in the execution of the contract, then only hired and non-owned coverage is required. If a vehicle is not used in the execution of the contract then automobile coverage is not required.
  - (c) Professional Liability: \$1,000,000 limit of liability.
  - (d) Workers' Compensation and Employers Liability: Statutory coverage in compliance with the laws of the State of Connecticut. Coverage shall include Employer's Liability with minimum limits of \$100,000 each accident, \$500,000 Disease - Policy limit, \$100,000 each employee.  
An Excess Liability/Umbrella Policy may be used to meet the minimum limit guidelines.
2. The contractor shall provide copies of its Certificates of Insurance to CSU, if requested to do so. The Certificates shall include the following:

- (a) The certificate shall clearly identify the State of Connecticut, its officers, officials, employees, agents, boards and commissions as Additional Insured. The coverage shall contain no special limitations on the scope of protection afforded to the State.

- (b) The certificate shall clearly indicate the project name and project number or some easily identifiable reference to the relationship to the State.

3. The Certificates shall be signed by a person authorized by that insurer to execute contracts on its behalf. The certificate Accord Form 25 Certificate shall indicate a minimum thirty (30) day endeavor to notify requirement in the event of cancellation or non-renewal of coverage.
4. The contractor shall assume responsibility for payment of any and all deductibles applicable to the insurance policies described in Section IV.B.1 above.
5. The contractor's insurer shall have no right of recovery or subrogation against the State and the described insurance shall be primary coverage.
6. Each required policy of insurance shall provide that it shall not be suspended, voided, cancelled or reduced except after thirty (30) days' prior written notice sent by certified mail to CSU.
7. "Claims Made" coverage shall be unacceptable, with the exception of Professional Liability.

#### C. Bonds

The successful proposer shall submit the following bonds, at the request of CSU, within ten (10) days of the date of receipt of the Award Notice and Offer:

1. A Performance Bond in the amount of one hundred percent (100%) of the total proposal price; and
2. A Labor and Material Payment Bond in the amount of one hundred percent (100%) of the total proposal price.

A company authorized to transact business in the State of Connecticut shall execute the bonds. Checks shall be made payable to CSU or the appropriate CSU University.

#### D. Delivery

1. Unless otherwise specified in the proposal, all products and equipment delivered pursuant to the contract shall be new and shall include any and all manufacturer's warranties.
2. Delivery shall be to the point specified in the contract.
3. All deliveries shall display, in plain sight, any related Purchase Order or Reference/Delivery Number. Failure to display said number may cause the shipment to be rejected and returned at the contractor's expense.
4. All deliveries shall be in compliance with Sections 22a-194 to 22a-194g of the Connecticut General Statutes related to product packaging.
5. Deliveries shall be subject to reweighing on official sealed scales designated by the State and payment shall be made on the basis of net weight of materials received.
6. Payment terms are net forty-five (45) days after receipt of goods or invoice, whichever is later. State of Connecticut certified small or minority contractors are payable under terms net thirty (30) days.
7. Monies owed to CSU or the Department of Revenue Services (DRS) by the contractor shall be deducted from current obligations.

**E. Inspection and Tests**

1. The inspection of all commodities and the making of chemical and physical tests of samples of deliveries to determine whether or not the contract specifications are being complied with shall be made in the manner prescribed by CSU.
2. Any item that fails in any way to meet the terms or specifications set forth in the contract is subject to be paid for at an adjusted price or rejected, in the discretion of CSU.
3. After delivery and installation of any equipment provided pursuant to the contract, the contractor shall certify to CSU that the equipment has been properly installed and is ready for use. Thereafter, for a test period of sixty (60) days, CSU shall operate the system in accordance with its normal operating practices. The acceptance test shall determine if the equipment's operating characteristics meet the performance standards set forth in the contract.

**F. Advertising**

Reference by the contractor to sales to CSU for advertising and promotional purposes without the prior approval of CSU shall be expressly prohibited.

## TERMS/CONDITIONS

### EXECUTIVE ORDERS

This Agreement is subject to the provisions of Executive Order No. 3 of Governor Thomas J. Meskill promulgated June 16, 1971, and, as such, this Agreement may be canceled, terminated or suspended by the State Labor Commissioner for violation of or noncompliance with said Executive Order No. 3, or any state or federal law concerning nondiscrimination, notwithstanding that the Labor Commissioner is not a party to this contract. The parties to this Agreement, as part of the consideration hereof, agree that said Executive Order No. 3 is incorporated herein by reference and made a part hereof. The parties agree to abide by said Executive Order and agree that the State Labor Commissioner shall have continuing jurisdiction in respect to contract performance in regard to nondiscrimination, until the contract is completed or terminated prior to completion. The contractor, agrees, as part consideration hereof, that this Agreement is subject to the Guidelines and Rules issued by the State Labor Commissioner to implement Executive Order No. 3, and that he will not discriminate in his employment practices or policies, will file all reports as required, and will fully cooperate with the State of Connecticut and the State Labor Commissioner. This Agreement is also subject to provisions of Executive Order No. 17 of Governor Thomas J. Meskill promulgated February 15, 1973, and, as such, this Agreement may be canceled, terminated or suspended by the contracting agency or the State Labor Commissioner for violation of or noncompliance with said Executive Order No. 17, notwithstanding that the Labor Commissioner may not be a party to this Agreement. The Parties to this Agreement, as part of the consideration hereof, agree that Executive Order No. 17 is incorporated herein by reference and made a part hereof. The Parties agree to abide by said Executive Order and agree that the contracting agency and the State Labor Commissioner shall have joint and several continuing jurisdiction in respect to contract performance in regard to listing all employment openings with the Connecticut State Employment Service. This contract is also subject to Executive Order Number 16 of Governor John G. Rowland promulgated August 4, 1999, and as such, the Agreement may be canceled, terminated or suspended by the state for violation of or noncompliance with said Executive Order No. 16. The Parties to this Agreement, as part of the consideration hereof agree that (a) The Contractor shall prohibit as a condition of employment, any weapon or dangerous instrument defined in (b); (b) Weapon means any firearm, including BB gun, whether loaded or unloaded, any knife (excluding a small pen or pocket knife), including a switchblade or other knife having an automatic spring release device, a stiletto, any police baton or nightstick or any martial arts weapon or electronic defence weapon. Dangerous instrument means any instrument, article, or substance that, under the circumstances, is capable of causing death or serious physical injury. (c) The Contractor shall prohibit employees from attempting to use, or threaten to use, any such weapon or dangerous instrument in the state work site and employees shall be prohibited from causing, or threatening to cause, physical injury or death to any individual in the state work site. (d) The Contractor shall adopt the above prohibition as work rules, violation of which shall subject the employee to disciplinary action up to and including discharge. The Contractor shall insure and require that all employees are aware is such work rules. (e) The contractor agrees that any subcontract it enters into in furtherance of the work to be performed hereunder shall contain provisions (a) through (d) of this Section. This Agreement is subject to Executive Order No 7B of Governor Jodi M. Rell, promulgated on November 16, 2005. The Parties to this Agreement, as part of the consideration hereof, agree that (a.) The State Contracting Standards Board ("the Board") may review this contract and recommend to the state contracting agency termination of the contract for cause. The state contracting agency shall consider the recommendations and act as required or permitted in accordance with the contract and applicable law. The Board shall provide the results of its review, together with its recommendations, to the state contracting agency and any other affected party in accordance with the notice provisions in the contract no later than fifteen (15) days after the Board finalizes its recommendation. For the purposes of this Section, "for cause" means: (1.) a violation of the State Ethics Code (Conn. Gen. Stat. Chapter 10) or Section 4A-100 of the Conn. Gen. Statutes or (2.) wanton or reckless disregard of any state contracting and procurement process by any person substantially involved in such contract or state contracting agency. (b.) For the purposes of this Section, "contract" shall not include real property transactions involving less than a fee simple interest or financial assistance comprised of state or federal funds, the form of which may include but is not limited to grants, loans, loan guarantees, and participation interests in loans, equity investments and tax credit programs. Notwithstanding the foregoing, the Board shall not have any authority to recommend the termination of a contract for the sale or purchase of a fee simple interest in real property following transfer of title. (c.) Effective January 1, 2006, notwithstanding the contract value listed in Conn. Gen. Stat. 4-250 and 4-251, all procurements between state agencies and private entities with a value of \$50,000 (fifty thousand dollars) or more in a calendar or fiscal year shall comply with the gift affidavit requirements of said Sections. Certification by agency officials or employees required by Conn. Gen. Stat. 4-252 shall not be affected by this Section.

### NON-DISCRIMINATION

- (a) For the purposes of this section, "minority business enterprise means any small contractor or supplier of materials fifty-one percent or more of the capital stock, if any, or assets of which is owned by a person or persons: (1) who are active in the daily affairs of the enterprise; (2) who have the power to direct the management and policies of the enterprise; and (3) who are members of a minority, as such term is defined in subsection (a) of Conn. Gen. Stat. 32-9n; and good faith means that degree of diligence which a reasonable person would exercise in the performance of legal duties and obligations. Good faith efforts shall include, but not be limited to, those reasonable initial efforts necessary to comply with statutory or regulatory requirements and additional or substituted efforts when it is determined that such initial efforts will not be sufficient to comply with such requirements.
- For purposes of this section, Commission means the Commission on Human Rights and Opportunities.
- For purposes of this section, Public works contract means any agreement between any individual, firm or corporation and the state or any political subdivision of the state other than a municipality for construction, rehabilitation, conversion, extension, demolition or repair of a public building, highway or other changes or improvements in real property, or which is financed in whole or in part by the State, including but not limited to, matching expenditures, grants, loans, insurance or guarantees.
- (b) (1) The Contractor agrees and warrants that in the performance of the contract such Contractor will not discriminate or permit discrimination against any person or group of persons on the grounds of race, color, religious creed, age, marital status, national origin, ancestry, sex, mental retardation or physical disability, including but not limited to, blindness, unless it is shown by such Contractor that such disability prevents performance of the work involved, in any manner prohibited by the laws of the United States or of the State of Connecticut. The Contractor further agrees to take affirmative action to insure that applicants with job related qualifications are employed and that employees are treated when employed without regard to their race, color, religious creed, age, marital status, national origin, ancestry, sex, mental retardation, or physical disability, including but not limited to, blindness, unless it is shown by such Contractor that such disability prevents performance of the work involved; (2) the Contractor agrees, in all solicitations or advertisements for employees placed by or on behalf of the Contractor, to state that it is an "affirmative action-equal opportunity employer" in accordance with regulations adopted by the Commission; (3) the Contractor agrees to provide each labor union or representative of workers with which the Contractor has a collective bargaining agreement or other contract or understanding and each vendor with which the Contractor has a contract or understanding, a notice to be provided by the Commission, advising the labor union or workers' representative of the Contractor's commitments under this section and to post copies of the notice in conspicuous places available to employees and applicants for employment; (4) the Contractor agrees to comply with each provision of this section and Conn. Gen. Stat. 46a-68e and 46a-68f and with each regulation or relevant order issued by said Commission pursuant to Conn. Gen. Stat. 46a-56, 46a-68e and 46a-68f; (5) the Contractor agrees to provide the Commission on Human Rights and Opportunities with such information requested by the Commission, and permit access to pertinent books, records and accounts, concerning the employment practices and procedures of the Contractor as relate to the provisions of this section and section 46a-56. If the contract is a public works contract, the Contractor agrees and warrants that he will make good faith efforts to employ minority business enterprises as subcontractors and suppliers of materials on such public works projects.
- (c) Determination of the Contractor's good faith efforts shall include, but shall not be limited to, the following factors: the Contractor's employment and subcontracting policies, patterns and practices; affirmative advertising, recruitment and training; technical assistance activities and such other reasonable activities or efforts as the Commission may prescribe that are designed to ensure the participation of minority business enterprises in public works projects.
- (d) The Contractor shall develop and maintain adequate documentation, in a manner prescribed by the Commission, of its good faith efforts.
- (e) The Contractor shall include the provision of subsection (b) of this section in every subcontract or purchase order entered into in order to fulfill any obligation of a contract with the State and such provisions shall be binding on a subcontractor, vendor or manufacturer unless exempted by regulations or orders of the Commission. The Contractor shall take such action with respect to any such subcontract or purchase order as the Commission may direct as a means of enforcing such provisions including sanctions for noncompliance in accordance with Conn. Gen. Stat. 46a-56; provided, if such contractor becomes involved in, or is threatened with, litigation with a subcontractor or vendor as a result of such direction by the Commission, the Contractor may request the State of Connecticut to enter into any such litigation or negotiation prior thereto to protect the interests of the State and the State may so enter.
- (f) The Contractor agrees to comply with the regulations referred to in this Section as they exist on the date of this contract and as they may be adopted or amended from time to time during the term of this contract and any amendments thereto.
- (g) The contractor agrees to the following provisions: The contractor agrees and warrants that in the performance of the agreement such Contractor will not discriminate or permit discrimination against any persons or group of persons on the grounds of sexual orientation, in any manner prohibited by the laws of the United States or of the State of Connecticut, and that employees are treated when employed without regard to their sexual orientation; the Contractor agrees to provide each labor union or representative of workers with which such contractor has a collective bargaining agreement or other contract or understanding and each vendor with which such contractor has a contract or understanding, a notice to be provided by the Commission on Human Rights and Opportunities advising the labor union or workers' representative of the Contractor's commitments under this section, and to post copies of the notice in conspicuous places available to employees and applicants for employment; the Contractor agrees to comply with each provision of this section and with each regulation or relevant order issued by said commission pursuant to Section 46a-56 of the general statutes; the Contractor agrees to provide the Commission on Human Rights and Opportunities with such information requested by the Commission, and permit access to pertinent books, records and accounts, concerning the employment practices and procedures of the Contractor which relate to the provisions of this section and Section 46a-56 of the general statutes.
- (h) The Contractor shall include the provisions of the foregoing paragraph in every subcontract or purchase order entered into in order to fulfill any obligations of a contract with the State and such provisions shall be binding on a subcontractor, vendor or manufacturer unless exempted by regulations or orders of the Commission. The Contractor shall take such action with respect to any such subcontract or purchase order as the Commission may direct as a means of enforcing such provisions including sanctions for noncompliance in accordance with Section 46a-56 of the general statutes; provided, if such Contractor becomes involved in, or is threatened with, litigation with a subcontractor or vendor as a result of such direction by the Commission, the Contractor may request the State of Connecticut to enter into any such litigation or negotiation prior thereto to protect the interests of the State and the State may so enter

### INSURANCE

The contractor agrees that while performing services specified in the agreement that he shall carry sufficient insurance (liability and/or other) as applicable according to the nature of the service to be performed so as to "save harmless" the State of Connecticut from any insurable cause whatsoever. If requested, certificates of such insurance shall be filed with the contracting State agency prior to the performance of services.

### STATE LIABILITY

The State of Connecticut shall assume no liability for payment for services under the terms of this agreement until the contractor is notified that this agreement has been accepted by the contracting agency and, if applicable, approved by the Office of Policy and Management (OPM) or the Department of Administrative Services (DAS) and by the Attorney General of the State of Connecticut.

**General Conditions of the Contract for Construction**  
**Department of Public Works**  
**State of Connecticut**  
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**ARTICLE 1**  
**DEFINITIONS**

WHENEVER THE FOLLOWING TERMS, OR PRONOUNS IN PLACE OF THEM, ARE USED THE INTENT AND MEANING SHALL BE AS FOLLOWS:

**1.1 ACCEPTANCE:** The Owner's acknowledgement of the Work from the Contractor upon certification by the Construction Administrator and Architect or Engineer that all Work has been completed.

**1.2 ADDITIONAL OR DELETED WORK:** Work required by the Department that, in the judgment of the Commissioner, involves any addition to, deduction from, or modification of the Work required by the Contract Documents.

**1.3 AGENCY:** The (User) Agency of the State of Connecticut having administrative authority of the facility in which the Work is being performed.

**1.4 APPLICATION FOR PAYMENT, PARTIAL PAYMENT OR REQUISITION:** Contractor's certified request for payment for completed portions of the Work and, if the Contract so provides, for materials or equipment suitably stored pending their incorporation into the Work.

**1.5 ARCHITECT OR ENGINEER:** A sole proprietor, partnership, firm, corporation or other business organization under Contract with the Owner, commissioned to prepare Contract Drawings and Specifications, to advise the Owner and in certain cases, to perform regular inspections during construction and when authorized to perform the duties of the Construction Administrator.

**1.6 AS-BUILT DRAWINGS:** Construction Drawings revised by the Contractor to show all significant Modifications made during the construction process.

**1.7 BASE BID:** Monetary value stated in the Bid Proposal Form as the sum for which the Bidder offers to perform the Work described in the Bidding Documents, exclusive of adjustments for Supplemental Bids.

**1.8 BID BOND:** Form of Bid Security executed by the Bidder as Principal and by a Surety to guarantee that the Bidder will enter into a Contract within a specified time and furnish any required bond as mandated by Connecticut General Statute Section 4b-92.

**1.9 BIDDER:** A sole proprietor, partnership, firm, corporation or other business organization submitting a Bid on the Bid Proposal Form for the Work contemplated.

**1.10 BIDDING DOCUMENTS:** Collectively, the Bidding Requirements and the proposed Contract Documents, including any addenda issued prior to receipt of Bids.

**1.11 BID OR BID PROPOSAL FORM:** A complete and duly signed proposal to perform Work (or a designated portion thereof) for a stipulated sum submitted in accordance with the Bidding Documents.

**1.12 BID SECURITY:** Certified check or Bid Bond submitted with Bid Proposal Form, which provides that the Bidder, if awarded the Contract, will execute such Contract in accordance with the requirements of the Bidding Documents.

**1.13 BUILDER'S RISK INSURANCE:** A specialized form of property insurance which provides coverage for loss or damage to the Work pursuant to the Contract Documents.

**1.14 CASH ALLOWANCE:** An amount established in the Contract Documents for inclusion in the Contract Sum to cover the cost of prescribed items not specified in detail, and as shown in the Allowance Schedule.

**1.15 CERTIFICATE OF ACCEPTANCE:** A document issued by the Owner to the Contractor stating that all Work specified in the Certificate of Acceptance has been completed and accepted by the Owner.

**1.16 CERTIFICATE OF COMPLIANCE:** A document stating that for the portion of the Project completed, either the design portion or the construction portion, has been performed in substantial compliance with all applicable building codes.

**1.17 CERTIFICATE OF OCCUPANCY:** Document issued by the authority having jurisdiction certifying that all or a designated portion of a building is approved for its designated use.

**1.18 CERTIFICATE OF SUBSTANTIAL COMPLETION:** A document prepared by the Architect or Engineer and approved by the Owner on the basis of an inspection stating:

**1.18.1** that the Work, or a designated portion thereof, is determined to be Substantially Complete;

**1.18.2** the date of Substantial Completion;

**1.18.3** the responsibilities of the Owner and the Contractor for security maintenance, heat, utilities, damage to the Work and insurance; and

**1.18.4** the time within which the Contractor shall complete the remaining Work.

**1.19 CHANGE ORDER:** Written authorization signed by the Owner, authorizing a modification in the Work, an adjustment in the Contract Sum, or an adjustment in the Contract Time.

**1.20 COMMISSIONER:** The State of Connecticut, Department of Public Works (DPW) Commissioner acting directly or through specifically authorized DPW personnel or agent(s) having authority to perform duties defined in Article 25.

**1.21 CONSTRUCTION ADMINISTRATOR:** A sole proprietor, partnership, firm, corporation or other business organization, under Contract or employed by the Owner commissioned and/or authorized to oversee the fulfillment of all requirements of the Contract Documents. The authorized Construction Administrator may be a Department of Public Works Assistant Project Manager, Department of Public Works Project Manager, a Clerk of the Works, an Architect, a Consulting Architect, a Consulting Construction Administrator, a Consulting Engineer etc. or any other designee as authorized and identified by the Owner.

**1.22 CONSTRUCTION CHANGE DIRECTIVE:** A written authorization signed by the Owner, directing a modification in the Work and stating a proposed basis for adjustment, if any, in the Contract Sum, Contract Time or both. Any Construction Change Directive effecting an adjustment to the Contract Sum or Contract Time shall result in a Change Order.

**1.23 CONTRACT DOCUMENTS OR CONTRACT:** The Agreement between Owner and Contractor, Conditions of the Contract (General Conditions, Supplementary Conditions, General Requirements and other Conditions), Drawings, Specifications, and Addenda issued prior to execution of the Contract, other documents listed in the Agreement and Modifications issued after execution of the Contract, all of which shall constitute the Contract.

**1.24 CONTRACTOR OR GENERAL CONTRACTOR:** A sole proprietor, partnership, firm or Corporation, under direct Contract with the Department of Public Works, responsible for performing the Work under the Contract Documents. Whenever the words "Contractor" or "General Contractor" are used it shall be understood to mean Contractor.

**1.25 CONTRACTOR'S LIABILITY INSURANCE:** Insurance purchased and maintained by the Contractor that insures the Contractor for claims for property damage, bodily injury or death.

**1.26 CONTRACT START DATE OR DATE OF COMMENCEMENT OF THE WORK:** The date, speci-

fied by the Owner in the Notice to Proceed, on which the Contractor is required to start the Work.

**1.27 CONTRACT SUM:** The sum stated in the Contract, which is the total amount payable by the Owner to the Contractor for performance of the Work under the Contract Documents.

**1.28 CONTRACT TIME:** The period of time allotted in the Contract Documents for Substantial Completion of the Work, including authorized adjustments thereto. The Contract Time is the sum of all Working Days and Non-Working Days as further defined herein and specified in the Contract Documents.

**1.29 DAY:** Whenever the word Day is used it shall be understood to mean calendar day stated on the Bidding Documents, unless stated otherwise.

**1.30 DEPARTMENT OF PUBLIC WORKS (DPW) PROJECT MANAGER:** The individual employed by the Owner, designated and authorized by the Commissioner, to be responsible for the overall management and oversight of the Project, and to represent the (User) Agency.

**1.31 DIESEL VEHICLE EMISSIONS CONTROL:** The reduction of air pollution emissions from diesel powered vehicles through the use of diesel engine emission control technologies.

**1.32 EQUAL(S):** Any deviation from the Specification which is defined as follows: A replacement for the specified material, device, procedure, equipment, etc., which is recognized and accepted as substantially equal to the first listed manufacturer or first listed procedure specified after review by the Architect/Engineer, and may be rejected or approved at the sole discretion of the Owner. All equals must be substantially equivalent to the first manufacturer or first procedure listed in the Specifications with reference to all of the following areas: the substance and function considering quality, workmanship, economy of operation, durability, and suitability for purposes intended; size, rating, and cost. The equal does not constitute a modification in the scope of Work, the Schedule, or Architect/Engineer's design intent of the specified material, device, procedure, equipment, etc.

**1.33 FINAL INSPECTION:** Review of the Work by the Architect or Engineer and Owner to determine whether Acceptance has been achieved.

**1.34 FINAL PAYMENT:** The last payment made by the Owner to the Contractor, made after notice of the Acceptance. Payment shall include the entire unpaid balance of the Contract Sum as adjusted by modifications.

**1.35 GENERAL CONDITIONS:** The General Conditions of the Contract for Construction, part of Division 00 of the Specifications.

**1.36 GENERAL REQUIREMENTS:** That part of the Contract Documents entitled General Requirements, which is Division 01 of the Specifications.

**1.37 GUARANTEE:** See Warranty.

**1.38 LIQUIDATED DAMAGES:** A sum established in a Contract, usually as a fixed sum per Day, as the predetermined measure of damages to be paid to the Owner due to the Contractor's failure to complete the Work within the Contract Time.

**1.39 LUMP SUM:** An item or category priced as a whole rather than broken down into its elements.

**1.40 MOBILE SOURCE:** A source designed or constructed to move from one location to another during normal operation except portable equipment and includes, but is not limited to, automobiles, buses, trucks, tractors, earth moving equipment, hoists, cranes, aircraft, locomotives operating on rails, vessels for transportation on water, lawnmowers, and other small home appliances.

**1.41 NON-WORKING DAYS:** All Saturdays, Sundays, Legal State Holidays (12), and any other Days identified in the Contract Documents that the Contractor is not permitted to execute the Work. The restriction of Non-Working Days may be suspended upon the approval or direction of the Commissioner.

**1.42 NOTICE TO BIDDER:** A notice contained in the Bidding Document informing prospective Bidders of the opportunity to submit Bids on a Project.

**1.43 NOTICE TO PROCEED:** Written notice, issued by the Commissioner or the Commissioner's authorized representative, to the Contractor authorizing the Contractor to proceed with the Work and establishing the date for commencement of the Contract Time.

**1.44 OWNER OR DEPARTMENT:** The State of Connecticut, Department of Public Works acting through its Commissioner or specifically authorized Department personnel or agent.

**1.45 OVERHEAD:** Indirect costs including: supervision (any position over the foreman), field and home office expense, insurance, and small tools and consumables.

**1.46 PAYMENT, BOND, LABOR BOND OR MATERIAL BOND:** A bond in which the Contractor

and the Contractor's surety guarantee to the Owner that the Contractor will pay for labor and materials furnished for use in the performance of the Contract, as required by Connecticut General Statutes Section 49-41.

**1.47 PERFORMANCE BOND OR SURETY BOND:** A bond in which the Contractor and the Contractor's surety guarantee to the Owner that the Work will be performed in accordance with the Contract Documents, as required by Connecticut General Statutes Section 49-41.

**1.48 PERFORMANCE SPECIFICATION:** A description of the desired results or performance of a product, material, assembly, procedure, or a piece of equipment with criteria for identifying the standard.

**1.49 PLANS OR DRAWINGS:** All Drawings or reproductions of Drawings pertaining to the construction of the Work contemplated and its appurtenances.

**1.50 PROJECT:** The total construction of which the Work performed under the Contract Documents may be the whole or a part.

**1.51 PROJECT MANUAL:** The set of documents assembled for the Work which includes, but is not limited to, Contract Documents, Bidding Requirements, Sample Forms, Conditions of the Contract, General Requirements, and the Specifications.

**1.52 PROPRIETARY SPECIFICATION:** A specification that describes a product, procedure, function, material, assembly, or piece of equipment by trade name and/or by naming the manufacturer(s) or manufacturer's procedure, exact model number, item, etc., of those products acceptable to the Owner.

**1.53 RETAINAGE:** A percentage of each Application for Payment and a percentage of the total Contract Sum retained by the Owner.

**1.54 SCHEDULE:** A Critical Path Method (CPM) or Construction Schedule as required by the Contract Documents which shall be a diagram, graph or other pictorial or written Schedule showing all events expected to occur and operations to be performed and indicating the Contract Time, start dates, durations and finish dates as well as Substantial Completion and Acceptance of the Work, rendered in a form permitting determination of the optimum sequence and duration of each operation.

**1.55 SCHEDULE OF VALUES:** A document furnished by the Contractor to the Architect or Engineer and Owner stating the portions of the Contract Sum allocated to the various

portions of the Work, which is to be used for reviewing the Contractor's Applications for Payment.

**1.56 SECONDARY SUBCONTRACTOR:** A sole proprietor, partnership, firm or Corporation under direct Contract with the Subcontractor to the General Contractor.

**1.57 SENSITIVE RECEPTOR SITES:** Areas where concentrations of diesel emissions may be harmful to sensitive populations, including, but not limited to, hospitals, school and university buildings being occupied during a student semester, residential structures, daycare facilities, elderly housing, and convalescent facilities.

**1.58 SHOP DRAWINGS:** Drawings provided to Architect or Engineer and Owner by a Contractor that illustrate construction, materials, dimensions, installation, and other pertinent information for the incorporation of an element or item into the construction as detailed Contract Documents.

**1.59 SPECIFICATIONS:** The description, provisions and other requirements pertaining to the method and manner of performing the Work and/or to the quantities and quality of materials to be furnished under the Contract.

**1.60 SUBCONTRACTOR:** A sole proprietor, partnership, corporation or other business organization under direct Contract with the Contractor supplying labor and/or materials for the Work at the site of the Project.

**1.61 SUBMITTALS:** Documents including, but not limited to, samples, manufacturer's data, Shop Drawing, or other such items submitted to the Owner and Architect or Engineer by the Contractor for the purpose of approval or other action, as required by the Contract Documents.

**1.62 SUBSTANTIAL COMPLETION:** The stage in the progress of the Work when the Work or designated portion thereof is sufficiently complete in accordance with the Contract Documents.

**1.63 SUBSTITUTION:** Any deviation from the specified requirements, which is defined as follows: A replacement for the specified material, device, procedure, equipment, etc., which is not recognized or accepted as equal to the first manufacturer or procedure listed in the Specification after review by the Architect/Engineer, and may be rejected or approved by the Owner. The Substitution is not equal to the specified requirement in comparison to the first manufacturer or first procedure listed in the Specifications in one or more of the following areas: the substance and function considering quality, workmanship, economy of operation, durability, and suitability for purposes intended; size, cost, and rating. The Substitution constitutes a modification in the scope of

Work, the Schedule, or the Architect/Engineer's design intent of the specified material, device, procedure, equipment, etc.

**1.64 SUPERINTENDENT:** The Contractor's representative at the site who is responsible for continuous field supervision, coordination, in, completion of the Work, and, unless another person is designated in writing by the Contractor to the Owner and the Construction Administrator, for the prevention of accidents.

**1.65 SUPPLEMENTAL BID:** The monetary value stated in the Bid to be added to the amount of the Base Bid if the corresponding Work, as described in the Bidding Documents, is accepted.

**1.66 SUPPLEMENTARY CONDITIONS:** An extension in the Bid to be added to the amount of the Base Bid if the corresponding Work, as described in the Bidding Documents, is accepted.

**1.67 SYSTEMS COMMISSIONING AUTHORITY (SCA):** An independent entity under contract directly with the Owner or Owner's Representative responsible for performing the specified commissioning procedures.

**1.68 THRESHOLD LIMIT BUILDING:** Any proposed (new) structures or additions as defined by the Connecticut General Statutes Section 29-276b.

**1.69 UNIT PRICE:** The monetary value stated by the Owner or the Contractor, as a price per unit of measurement for materials or services as described in the Contract Documents and/or Bidding Documents.

**1.70 WARRANTY:** A written, legally enforceable assurance of specified quality or performance of a product or Work or of the duration of satisfactory performance.

**1.71 WORK:** The construction and services required by the Contract Documents, and including all labor, materials, equipment and services provided or to be provided by the Contractor to fulfill the Contractor's obligations. The Work may constitute the whole or a part of the Project.

## ARTICLE 2 **CONDITIONS OF WORK**

**2.1** The Contractor shall carefully examine and study the conditions under which the Work is to be performed and the site of the Work, and compare the Contract Documents with each other and to information furnished by the Owner including but not limited to the Plans and Specifications, the form of the Contract, General Conditions, Supplementary Condi-

tions, General Requirements, Bonds and all other Contract Documents associated with the Work.

**2.2** The Contractor shall report to the Construction Administrator all errors, inconsistencies or omissions discovered. The Contractor shall not be liable to the Owner for damage resulting from errors, inconsistencies or omissions in the Contract Documents unless the Contractor recognized such errors, inconsistencies or omission and failed to report it to the Construction Administrator. If the Contractor performs any actions or construction activity knowing it involves an error, inconsistency or omission in the Contract Documents without notice to the Construction Administrator, the Contractor shall assume responsibility for such performance and related costs for the correction and shall not be allowed to submit any claim related to error, inconsistencies or omission.

**2.3** The Contractor shall take field measurements and verify field conditions and shall carefully compare such field measurements and conditions and other information known to the Contractor with the Contract Documents before commencing activities. Errors, inconsistencies or omissions discovered shall be reported to the Construction Administrator at once; and it will be assumed that the Contractor has been satisfied as to all requirements of the Contract Documents. Any deterrent conditions at the site of the Work which are obvious and apparent upon examination of the site but are not indicated on the Plans shall be corrected by the Contractor without additional compensation.

**2.4** In performing the Work, the Contractor must employ such methods or means as will not cause any interruption of or interference with the Work of any other Contractor, nor any inordinate disruption with the normal routine of the Owner, institution or Agency operating at the site.

**2.5** No claims for additional compensation will be considered when additional costs result from conditions made known to, discovered by, or which should have been discovered by, the Contractor prior to Contract signing.

**2.6** All Communications from the Contractor concerning proposed changes to the Contract Sum, Contract Time, or Work shall be in writing.

**2.7** The Contractor shall perform the Work in accordance with the Contract Documents and approved Submittals pursuant to Article 5.

called for by any one shall be as binding as if called for by all. Where discrepancies of conflict occur in the Contract Documents the following order of precedence shall be utilized:

**3.1.1** Amendments and addenda shall take precedence over previously issued Contract Documents.

**3.1.2** The Supplementary Conditions take precedence over the General Conditions.

**3.1.3** The General Conditions take precedence over the General Requirements.

**3.1.4** The Specifications shall take precedence over the Plans.

**3.1.5** Stated dimensions shall take precedence over scaled dimensions.

**3.1.6** Large-scale detail Drawings shall take precedence over small-scale Drawings.

**3.1.7** The Schedules contained in the Contract Documents shall take precedence over other data on the Plans.

**3.2** Neither party to the Contract shall take advantage of any obvious error or apparent discrepancy in the Contract Documents. The Contractor shall give immediate written notification of any error or discrepancy discovered to the Construction Administrator, who shall take the necessary actions to obtain such corrections and interpretations as may be deemed necessary for the completion of the Work in a satisfactory and acceptable manner. The Contractor shall then promptly proceed under the direction of the Owner and the provisions of Article 13. The Contractor's failure to provide immediate notice shall mean the Contractor will not be entitled to any additional compensation, either monetary or Contract Time adjustment, with respect to any discrepancy.

**3.3** Execution of the Contract by the Contractor is a representation that the Contractor has visited the site, become familiar with local conditions under which the Work is to be performed, and correlated personal observations with requirements of the Contract Documents.

**3.4** Organization of the Specifications into divisions, sections and articles, and arrangement of Drawings, shall not control the Contractor in dividing the Work among Subcontractors or in establishing the extent of Work to be performed by any trade.

**3.5** Unless otherwise stated in the Contract Documents, words which have well-known technical or construction industry meanings are used in the Contract Documents in accordance with such recognized meanings.

**ARTICLE 3**  
**CORRELATION OF CONTRACT DOCUMENTS**

**ARTICLE 4**  
**COMMENCEMENT AND PROGRESS OF WORK**

**3.1** The Contract Documents are complementary, and what is

**4.1** The Work shall start upon the date given in the Notice to Proceed. The Contractor shall complete all the Work necessary for Final Payment, including but not limited to Substantial Completion, Contract close-out, testing and demonstration of all systems as required for Acceptance, punchlist Work, training and submission of Record Documents, manuals, Guarantees and Warranties as stated in the Contract Document.

**4.2** Time is of the essence with respect to the Contract Time. By executing the Contract, the Contractor confirms and agrees that the Contract Time is a reasonable period to perform the Work. The Contractor shall proceed expeditiously with adequate forces and shall achieve Substantial Completion within the Contract Time. The Contractor may, at his discretion, plan to complete the Work and achieve Substantial Completion in less time than the Contract Time.

**4.3** The Contractor's early completion Schedule notwithstanding, the Owner reserves the right to order Modifications to the Work in accordance with Article 13 at any time during the Contract Time.

**4.4** The Contractor shall not be entitled to costs for delay due to Owner ordered Modifications or any other circumstances for the period of time between the Contractor's elected early completion and the end of the Contract Time. Such costs include, but are not limited to, extended home office costs, field office costs, or supervisory and management costs incurred in performance of the Work. Early completion of the Work shall not merit additional compensation.

**4.5** If the Contractor is delayed at any time in the progress of Work by acts of God, such as fire or flood or any action, injunction or stop order issued by any court, judge or officer of the court or any other court action beyond the Owner's control, then the Contract Time may be extended by Change Order for such reasonable time as demonstrated by the Contractor's Schedule and as the Owner may determine that such event has delayed the Work. In any event, the granting of an extension of time shall be solely within the discretion of the Owner.

**4.6** Except as otherwise may be provided herein, extensions of time shall be the Contractor's sole remedy for such delay. No payment or compensation of any kind shall be made to the Contractor for damages because of hindrance in the orderly progress of Work caused by the aforesaid causes.

**4.7** The Contractor acknowledges that the Contract amount includes and anticipates any and all delays, whether avoidable or unavoidable, from said orders, which may issue from any court, judge, court officer, or act of God, and that such delays shall not, under any circumstances, be construed as compensable delays.

**4.8** Any extension of the Contract Time shall be by Change Order pursuant to Article 13.

**4.9** The Contractor shall employ a competent project manager who shall represent the Contractor. Communications given to the project manager shall be binding as if given to the Contractor. The project manager will be employed full time on the Project and be located and assigned to the Project site during and for the duration of the Work.

**4.10** The Contractor shall employ a competent Superintendent and necessary assistants who will be in attendance at the project site during the performance of the Work.

**4.11** Upon execution of the Contract, materials may be purchased. No material escalation costs will be valid or compensable unless the Owner directs, in writing, a delay in the procurement.

**ARTICLE 5**  
**SUBMITTALS, PRODUCT DATA, SHOP  
DRAWINGS AND SAMPLES**

**5.1** Contractor shall review, approve, and submit to the Construction Administrator all Submittals including but not limited to, product data, Shop Drawings, and samples, with such promptness as to cause no delay in the Work.

**5.2** Correction or approval of such Submittals, Shop Drawings, product data and samples will be made with reasonable promptness by the Architect or Engineer. Approval will be general only and shall not relieve the Contractor from responsibility for errors in dimensions, for construction and field coordination of the Work or for any departure from the Contract Documents, unless such departure has received the Owner's written approval.

**5.3** No Work governed by such Shop Drawings, Schedules or samples shall be fabricated, delivered or installed until approved by the Architect or Engineer.

**5.4** No damages for delays or time extensions will be granted, even if approvals deviate from the approved Schedule.

**ARTICLE 6**  
**SEPARATE CONTRACTS**

**6.1** The Owner reserves the right to perform Work in connection with the Contract with the Owner's own forces, or to let

separate contracts relating to the Contract (Project) site or in connection with Work on adjoining sites. In such cases, the Contractor shall afford such parties reasonable opportunity for storage of materials and equipment and coordinate and connect the Work with the work on adjoining sites or other Projects, and shall fully cooperate with such parties in the matter required under Article 7 herein.

**6.2** Contractors working in the same vicinity shall cooperate with one another and, in case of dispute, decision of the Owner shall be final and binding to all Contractors involved, including Contractors under separate Contracts.

**6.3** The Contractor shall assume all liability, financial or otherwise, in connection with this Contract and shall protect and hold harmless the Owner from any and all damages or claims that may arise because of inconvenience or delay which the Contractor may cause other Contractors. If the Contractor experiences a loss because of the presence and operations of other Contractors working adjacent to or within the limits of the same Project, then as between the Owner and the Contractor, the Contractor shall bear such loss.

**6.4** Insofar as possible, the Contractor shall arrange the Work and shall place and dispose of the materials being used so as not to interfere with the operations of other Contractors adjacent to or within the limits of the same Project. The Contractor shall join its Work with that of others in an acceptable manner, and perform the Work in proper accordance with that of the others.

**6.5** In no event shall the Owner be responsible for any claim or damages that are the result of the Contractor's failure to coordinate the Work with any other Contractor or Subcontractor.

**ARTICLE 7**  
**COOPERATION OF TRADES**

**7.1** The Contractor shall be responsible for and shall control all activities of their Subcontractors. The Subcontractors shall consult and cooperate with one another. Each Subcontractor shall furnish all necessary information to other Subcontractors and shall lay out and install their own Work so as to avoid any delays or interference with the Work of others.

**7.2** Any cost or changes, cutting and/or repairing, made necessary by the failure to observe the above requirements shall be borne by the party or parties responsible for such failure or neglect or their faulty Work installed.

**ARTICLE 8**  
**DAMAGES**

**8.1** The Liquidated Damages, provided in the Bidding Documents, will be assessed at two distinct times, as follows:

**8.1.1 Liquidated Damages – Substantial Completion:**

If the Contractor fails to achieve Substantial Completion of the Work by the Substantial Completion Date, and such delay is not otherwise excused under this Contract, then the Contractor agrees to pay to the Owner Liquidated Damages for the dollar amount specified in the Bid Proposal Form for this Project, for each Day beyond Substantial Completion that the Contractor fails to achieve Substantial Completion. The parties to this Contract acknowledge and agree that the actual damages that are to be anticipated as a result of the neglect, failure, or refusal of the Contractor to substantially complete the Project by the established Substantial Completion Date are uncertain in amount or extremely difficult to determine. Accordingly, the parties to this Contract do intend and in fact now agree to liquidate damages in advance and stipulate that the amount set forth in this subparagraph is reasonable and an appropriate remedy and is intended to constitute compensatory damages and does not constitute a penalty of any kind. The parties understand and agree that, by including a provision for Liquidated Damages in this Contract, or in pursuing any relief pursuant to such provision:

**.1** the parties do not intend to set a price for the privilege not to perform;

**.2** the availability of Liquidated Damages may not be relied upon as a basis for argument that the Owner has an adequate remedy at law; and

**3** the remedies available to the Owner under this Agreement are cumulative and not exclusive.

**8.1.2 Liquidated Damages – Acceptance:**

If the Contractor fails to complete all of the Work required for Acceptance of the Work within ninety (90) Days of Substantial Completion then the Contractor agrees to pay to the Owner Liquidated Damages for the dollar amount specified in the Bid Proposal Form for each Day in excess of ninety (90) Days beyond the Substantial Completion Date that the Contractor fails to achieve Acceptance. The parties to this Contract acknowledge and agree that the actual damages that are to be anticipated as a result of the failure of the Contractor to complete all of the Work required for Acceptance within ninety (90) Days of the established Substantial Completion Date are uncertain in amount or extremely difficult to determine. Accordingly, the parties to this Contract do intend and in fact now agree to liquidate damages in advance and stipulate that the amount set forth in this subparagraph is reasonable and an appropriate remedy and is intended to constitute compensatory damages and does not constitute a penalty of any kind. The parties understand and agree that, by including a

provision for Liquidated Damages in this Contract, or in pursuing any relief pursuant to such provision:

- .1 the parties do not intend to set a price for the privilege not to perform;
- .2 the availability of Liquidated Damages may not be relied upon as a basis for argument that the Owner has an adequate remedy at law; and
- .3 the remedies available to the Owner under this Agreement are cumulative and not exclusive.

**8.2** The Liquidated Damages or any portion thereof may be waived at the sole discretion of the Commissioner.

**8.3** No payment by the Owner, either partial or final, shall be construed to waive the Owner's right to seek Liquidated Damages.

**8.4** In the event a court determines that the Contract herein is null and void for any reason, Contractor agrees that Contractor will not seek or pursue any lawsuit or claim for damages, including, but not limited to, claims for loss of Overhead or anticipated profits, against the Owner and the Owner shall not be liable for any damages which Contractor may incur as a result of such decision. In addition, if the court enjoins the Owner from entering into or proceeding with the Contract herein, the Owner shall not be liable for any damages arising out of or relating to the award of such Contract which Contractor may have incurred as a result of the injunction.

**ARTICLE 9**  
**MINIMUM WAGE RATES**

**9.1** In accordance with the provisions of the Connecticut General Statutes Section 31-53, the following applies:

"The wages paid on an hourly basis to any person performing the work of any mechanic, laborer, or worker on the work herein contracted to be done and the amount of payment or contribution paid or payable on behalf of each such person to any employee welfare fund, as defined in subsection (h) of this section, shall be at a rate equal to the rate customary or prevailing for the same work in the same trade or occupation in the town in which such public works project is being constructed. Any contractor who is not obligated by agreement to make payment or contribution on behalf of such persons to any such employee welfare fund shall pay to each mechanic, laborer or worker as part of such person's wages the amount of payment or contribution for such person's classification on each payday."

**9.2** Each Contractor who is awarded a Contract on or after October 1, 2002 shall be subject to provisions of the Connecticut General Statutes, Section 31-53 as amended by Pub-

lic Act 02-69, "An Act Concerning Annual Adjustments to Prevailing Wages."

No wage adjustment will be made to the Contract for any wage increase under this Article.

**ARTICLE 10**  
**POSTING MINIMUM WAGE RATES**

**10.1** The Contractor shall post at conspicuous points on the site of the Contract a Schedule showing all determined wage rates for all trades and all authorized deductions, if any, from wages to be paid.

**10.2** The Contractor shall provide weekly certified payrolls to the Owner for all persons working on the site.

**ARTICLE 11**  
**CONSTRUCTION SCHEDULES**

**11.1** Unless otherwise specified in the Contract Documents, within twenty-one (21) Days from the Contract Start Date, the Contractor shall submit the following to the Owner for approval:

**11.1.1** A comprehensive Schedule of Submittals required by the Specifications. Said Schedule shall include Submittal dates, required approval dates and date material must be on site.

**11.1.2** The Contractor shall allow a minimum of 14 Days for the Owner and its agents' review of Submittals. No extension of the Contract Time shall be granted for revisions and resubmission. Further, the Contractor shall allow a minimum of eight weeks for testing and Acceptance of the Work by the Owner.

**11.1.3** When the Contract Documents specify a "CPM Schedule" a detailed Critical Path Method Schedule is required using software approved by the Owner and/or Construction Administrator with as many activities as necessary to make the Schedule an effective tool for planning and monitoring the progress of the Work. The Contractor shall show all pertinent activities requiring coordination between trades.

**11.1.4** When the Contract Documents specify a "Construction Schedule" a detailed Construction Schedule is required using software approved by the Owner as a horizontal bar chart with a separate bar for each major portion of the Work or operation to make the Schedule an effective tool for planning and monitoring the progress of the Work.

**11.2** Unless otherwise specified under the Contract Documents, the Contractor shall provide a monthly update of the CPM Schedule or Construction Schedule in the format required by the Owner as well as a disk of the updated Schedule and program. If, in the opinion of the Owner, the Work is falling behind Schedule, the Contractor shall submit a revised Schedule demonstrating a recovery plan to ensure Substantial Completion of the Work within the Contract Time.

**11.3** Overtime, increased manpower, and additional shifts: If ordered by the Owner in writing, the Contractor shall work overtime, and/or add additional manpower and/or shifts:

**11.3.1** If the Contractor is not behind Schedule, the Owner will pay the Contractor the actual additional premium portion of the wages for overtime or additional shift work not included in the Contract price, but the Contractor shall not be entitled to Overhead and Profit.

**11.3.2** If the Contractor, through its sole or partial fault or neglect is behind Schedule, the Owner may order the Contractor, at the Contractor's expense, to increase its manpower or to work any overtime or additional shifts or take other action necessary to expedite the Work to meet the Project Schedule.

**11.3.3** If the Schedule is shown to be more than 21 Days behind in any critical activity, overtime, increase manpower and/or additional shifts shall be implemented immediately regardless of who is at fault. A disagreement over the cause of the impact will not relieve the Contractor from the obligation of complying with this Article. Once liability for the impact is determined, compensation will be determined in accordance with 11.3.1 or 11.3.2.

**11.3.4** The Owner reserves the right to suspend activity under Paragraph 11.3. Suspension shall be in writing and at the sole discretion of the Commissioner.

**11.4** Requisitions for partial payment will not be processed until the Contractor has complied with this requirement.

## **ARTICLE 12** **PREFERENCE IN EMPLOYMENT**

**12.1** Should this Contract be for the construction or repair of any building, then in the employment of labor to perform the Work specified herein, preference shall be given to citizens of the United States, who are, and continuously for at least three (3) months prior to the date hereof, have been residents of the labor market area, as established by the State of Connecticut Labor Commissioner, in which such Work is to be done, and if no such qualified person is available, then to citizens who have continuously resided in the county in which the Work is to be performed for at least three (3)

months prior to the date hereof, and then to citizens of the state who have continuously resided in the State at least three months prior to the date hereof.

**12.2** Should this Contract be for a Public Works Project other than for the construction, remodeling or repairing of public buildings covered by Connecticut General Statutes 31-52, then in the employment of mechanics, laborers or workmen to perform the Work specified herein, preference will be given to residents of the state who are, and continuously for at least six (6) months prior to the date hereof have been residents of this State, and if no such person is available then to residents of other states.

**12.3** The provisions of this Article shall not apply where the state or any subdivision thereof may suffer the loss of revenue granted or to be granted from any Agency or Department of the federal government as a result of this Article or regulations related thereto.

## **ARTICLE 13** **COMPENSATION FOR CHANGES IN THE WORK**

**13.1** At any time, without invalidating the Contract and by a written order and without notice to the sureties, the Owner, through the Construction Administrator, may order modifications in the Work consisting of additions, deletions or other revisions. Upon request, the Contractor shall supply the Construction Administrator promptly with a detailed proposal for the same, showing quantities of and Unit Prices for the Work and that of any Subcontractor involved.

**13.2** Modifications to the Work will be authorized by a written Change Order, or if necessary to expedite the Work, a written Construction Change Directive, issued by the Owner as provided for in Article 25. Change Orders and Construction Change Directives shall be processed in accordance with the terms of the Contract Documents. Upon receipt of the written Change Order, the Contractor shall proceed with the Work when and as directed.

**13.3** If a Change Order makes the Work less expensive for the Contractor, the proper deductions shall be made from the Contract Sum, said deductions to be computed in accordance with the provisions listed in this Article 13.

**13.4** The Contractor shall not be entitled to an extension of time if in the opinion of the Owner the Additional Work in conjunction with the Work can be performed without impact on the Contract Time.

**13.5** The Contractor may request, and the Owner may grant additional Contract Time when, in the opinion of the Owner,

the Contractor has demonstrated that the Additional Work cannot be performed in conjunction with the Work without impact on the original Substantial Completion and/or Acceptance (if applicable) date.

**13.6** The amount of compensation to be paid to the Contractor for any Additional or Deleted Work that results in a Change Order shall be determined in one of the following manners:

**13.6.1 AMOUNT OF COMPENSATION FOR CHANGE ORDER COSTS: LABOR, EQUIPMENT, BENEFITS AND MATERIAL:**

**13.6.1.1** Unit Price: As stated in the Contract Documents.

**13.6.1.2** Unit Price: As subsequently agreed upon by the Contractor and Owner

**13.6.1.3** Lump Sum: Agreed upon sum by the Owner and the Contractor. The Owner may rely on costs, prices, and documentation provided by the Contractor or Subcontractor in agreeing to a Lump Sum. If the Owner believes that additional information is necessary to substantiate the accuracy of the cost, the Owner reserves the right to request and receive additional information from the Contractor. The Lump Sum must be based upon the following itemized costs:

**13.6.1.3.1** Labor: (Contractor's or Subcontractor's own forces) No Change Order Proposal shall be negotiated if the request is solely for the increased labor rate over those originally carried by the Contractor in its original bid. Additional foreman hours shall not be included unless additional crews are added and/or a compensable time extension is granted. Project Executive time shall not be included as a direct cost as it is part of the overhead mark-up allowed. Project manager hours shall not be included unless a compensable time extension is granted.

**13.6.1.3.2** Material: (Actual cost to the Contractor or Subcontractor) Cost shall not be based upon list pricing unless it reflects the actual prices being paid and no discounts or other offsets are being received by the Contractor or Subcontractor. No Change Order Proposal shall be negotiated if the request is solely for the escalation of material prices over those originally carried by the Contractor in its original bid.

**13.6.1.3.3** Benefits: (The established rates of the following benefit costs inherent to the particular labor involved):

**13.6.1.3.3.1** Workers Compensation.

**13.6.1.3.3.2** Federal Social Security.

**13.6.1.3.3.3** Connecticut Unemployment Compensation.

**13.6.1.3.3.4** Fringe Benefits.

**13.6.1.4** Rented Equipment (Used directly on the Work and by the Contractor's or Subcontractor's own forces).

**13.6.1.5** Owned Equipment (Used directly on the Work and by the Contractor's or Subcontractor's own forces). Daily rate is not to exceed 3% of the monthly rental rate as identified by a nationally recognized construction cost estimating guide or service.

**13.6.1.6 SMALL TOOLS:**

Include items such as shovels, picks, rakes, ladders, and power tools which are expected to be utilized on a project. Trade related equipment, hand tools, and power tools normally supplied with the labor or are normally expected to be owned in the performance of the typical work for a trade are not compensable. These costs shall not be approved as part of the Direct Cost of a Change Order as they are included in the Contractor's overhead mark-up percentage.

**13.6.2 OVERHEAD AND PROFIT PERCENTAGES:** (Maximum allowable percentages applied to labor, equipment, and material)

**13.6.2.1** Contractor's mark-up for Work performed by its own forces:

Change Order Amount	Overhead and Profit
\$0 to \$ 5,000	20%
\$5,001 to \$15,000	17%
\$15,001 to \$25,000	15%
\$25,000 and greater	12%

**13.6.3 OVERHEAD AND PROFIT PERCENTAGES:** (Maximum allowable percentages applied to labor, equipment, benefits and material)

**13.6.3.1** Contractor's mark-up for Work performed by its Subcontractor's forces and not allowable for any subsidiary in which the Contractor has a majority ownership:

Change Order Amount	Overhead and Profit
\$0 and greater	6%

**13.6.4 OVERHEAD AND PROFIT PERCENTAGES:** (Maximum allowable percentages applied to labor, equipment, benefits and material)

Subcontractor's mark-up for Work performed by its own forces:

Change Order Amount	Overhead and Profit
\$0 to \$ 5,000	20%
\$5,001 to \$15,000	17%
\$15,001 to \$25,000	15%
\$25,000 and greater	12%

**13.6.5 OVERHEAD AND PROFIT PERCENTAGES:**  
 (Maximum allowable percentages applied to labor, equipment, benefits and material)

**13.6.5.1** Subcontractor's mark-up for Work performed by its Secondary Subcontractor's forces. Limited to one level (tier) below the Subcontractor and not allowable for any subsidiary in which the Subcontractor has a majority ownership.

Change Order Amount	Overhead and Profit
\$0 and greater	6%

**13.7 BOND COSTS**

**13.7.1** Actual additional bonding costs associated with the value of the Change Order will be compensable only when supported by written documentation by the bonding company that the Change Order requires an increase to the original Performance, Payment, Labor or Material Bond.

**13.7.2** The Contractor shall notify the bonding company at each \$500,000 increase to the contract value as the cumulative result of change orders. A copy of the Consent of Surety must be provided to the Owner prior to the execution of any change order which exceeds each cumulative \$500,000.

**13.8** Trade discounts, rebates, and amounts received from the sales by the Contractor of surplus materials and equipment shall accrue to the Owner.

**13.9** If the parties cannot agree upon a Lump Sum, then the Commissioner, through the Project Manager, may at the option of the Commissioner take the following action(s):

**13.9.1** Issue a Construction Change Directive for the Additional or Deleted Work. The amount of compensation shall be computed by the actual net costs to the Contractor determined by time and material or Unit Prices based upon the same information required in Subparagraphs 13.6.1.3.3.1 through 13.6.1.5:

**13.9.1.1** Labor (Contractor's or Subcontractor's own forces)

**13.9.1.2** Material (Used by Contractor's or Subcontractor's own forces).

**13.9.1.3** Benefits: (The established rates of the following benefit costs inherent to the particular labor involved):

**13.9.1.3.1** Workers Compensation.

**13.9.1.3.2** Federal Social Security.

**13.9.1.3.3** Connecticut Unemployment Compensation.

**13.9.1.3.4** Fringe Benefits.

**13.9.1.4** Rented Equipment (Used directly on the Work and by the Contractor's or Subcontractor's own forces).

**13.9.1.5** Owned Equipment (Used directly on the Work and by the Contractor's or Subcontractor's own forces). Daily rate is not to exceed 3% of the monthly rental rate that can be identified by a nationally recognized construction cost estimating guide or service.

**13.9.2** Issue a Change Order adjusting the Contract Sum in the amount as determined by the Commissioner.

**13.10** For any Change Order or Construction Change Directive the Contractor shall, when requested, promptly furnish in a form satisfactory to the Construction Administrator and the Owner a complete detailed accounting of all costs relating to the Additional Work, including but not limited to certified payrolls and copies of accounts, bills and vouchers to substantiate actual costs. Further, the Owner reserves the right to access and make copies of the Contractor's records at any time upon written request from the Commissioner.

**13.11** Failure of the Contractor to negotiate in good faith issues of time and costs or failure to provide requested documentation within fourteen (14) Days, or a time period accepted by the Commissioner, shall constitute a waiver by the Contractor of any claim. In such cases the Owner may elect to issue a unilateral Change Order in an amount deemed to be fair and equitable by the Commissioner. The provisions hereof shall not affect the power of the Contractor to act in case of emergency, threatened injury to persons, or damage to Work on any adjoining property. In this case the Commissioner, through the Project Manager, shall issue a Change Order for such amount as the Commissioner finds to be reasonable cost of such Work.

**ARTICLE 14**  
**DELETED WORK**

**14.1** Without invalidating any of the terms of the Contract, the Commissioner may order deleted from the Contract any items or portions of the Work deemed necessary by the Commissioner.

**14.2** The compensation to be deducted from the Contract Sum for such deletions shall be determined in the manner provided for under the provisions of Article 13 or in the event none of the provisions of Article 13 are applicable then by the value as estimated by the Owner.

**ARTICLE 15**  
**MATERIALS: STANDARDS**

**15.1** Unless otherwise specifically provided for in the Specifications, all equipment, materials and articles incorporated in

the Work are to be new and of the best grade of their respective kinds for the purposes. Wherever in the Contract Documents a particular brand, make of material, device, or equipment is shown or specified, the first manufacturer listed in the specification section is to be regarded as the standard. When the specification is proprietary and only one manufacturer is listed, the Contractor shall use the named manufacturer and no Substitutions or Equals will be allowed.

**15.2** Any other brand, make of material, device, equipment, procedure, etc. which is a deviation from the specified requirement is prohibited from use, but may be considered by the Owner for approval as an Equal or Substitution. The Contractor is to adhere to the specific requirements of the Contract Documents. Substitutions are discouraged and are only approved by the Commissioner as an exception.

**15.3 Submittals – Equals and Substitution Requests:**

**15.3.1** Substitution of Materials and Equipment before Bid Opening. The Owner will consider requests for Equals or Substitutions, if made prior to the receipt of the Bid. The information on all materials shall be consistent with the information herein.

**15.3.1.1** Statement of Variances – a statement of variances must list all features of the proposed Substitution which differ from the Drawings, Specifications and/or product(s) specified and must further certify that the Substitution has no other variant features. A request will be denied if submitted without sufficient evidence.

**15.3.1.2** Substitution Denial – any Substitution request not complying with the above requirements will be denied. Substitution request sent after the deadline established in the Notice to Bidder will be denied.

**15.3.1.3** An addendum shall be issued to inform all prospective Bidders of any accepted Substitution in accordance with Owner's addenda procedures.

**15.3.2** Substitution of Materials and Equipment After Bid Opening: Subject to the Architect or Engineer's determination, if the material or equipment is Equal to the one specified or pre-qualified and the DPW Project Manager's approval of such determination, Substitution of Material or Equipment may be allowed after the Letter of Award is issued only:

**15.3.2.1** If the specified or pre-qualified item is delayed by unforeseeable contingencies beyond the control of the Contractor which would cause a delay in the Project completion;

**15.3.2.2** If any specified or pre-qualified item is found to be unusable or unavailable due to a change by the manufacturer or other circumstances; or

**15.3.2.3** If the Contractor desires to provide a more recently developed material, equipment, or manufac-

tured model from the same named manufacturer than the one specified or pre-qualified; or

**15.3.2.4** If the specified material and/or equipment inadvertently lists only a single manufacturer.

**15.4** Contractor shall submit each request for Equal or Substitution to the Architect or Engineer who shall review each request and make the following recommendations to the Owner:

**15.4.1** Acceptance or non-acceptance of the adequacy of the submission and required back-up,

**15.4.2** Determination of the category of the request for Substitution or Equal, and

**15.4.3** Overall recommendation for approval or rejection of the Substitution or Equal. The determination of the category as a Substitution may be grounds for an immediate rejection by the Owner.

**15.5** Approval of the Owner for each Equal or Substitution shall be obtained before the Contractor proceeds with the Work. The decision of the Commissioner, in this regard, shall be final and binding on the Contractor.

**15.6** No extension of time will be allowed for the time period required for consideration of any Substitution or Equal. No extension of time will be allowed and no responsibility will be assumed by the Owner when a Contractor submits a request for Substitution or Equal, whether such request be approved or denied, and the Contractor shall not be entitled to any claim for damages for delay.

**15.7** If the Contractor submits any request for an Equal or a Substitution, he shall bear the burden of proof that such requested Equal or Substitution meets the requirements of the Plans and Specifications.

**15.8** The Contractor shall purchase no materials or supplies for the Work which are subject to any chattel mortgage or which are under a conditional sale or other agreement by which an interest is retained by the seller. The Contractor warrants that the Contractor has good title to all materials and supplies used by him in the Work.

**15.9** All products and systems supplied to the State as a result of a purchase by a Contractor shall be certified that, to the best of the supplier's knowledge, there are no materials that are classified as hazardous materials being used within the assembly. Hazardous materials include, but are not limited to, products such as asbestos, lead, and other materials that have proven to cause a health risk by their presence.

**16.1** The purpose of the inspections will be to assure that the Work is performed in accordance with the Contract Documents. These inspections shall include, but not be limited to, all inspections and testing as required by the Owner, and any authorities have jurisdiction.

**16.2** All material and workmanship, if not otherwise designated by the Specifications, shall be subject to inspection, examination and test by the Commissioner at any and all times during manufacture and/or construction and at any and all places where such manufacture and/or construction is carried on. The Contract Documents additionally identify the parties responsible for performing and paying for the required testing and inspections. All required tests performed in a laboratory will be obtained and paid for by the Owner, except when the tests show the Work to be defective. The Contractor shall pay for all the costs associated with re-tests and re-inspections for all tests and inspections which fail. The Owner will issue a deduct Change Order to recover said retesting costs from the Contractor. All other tests, unless otherwise specified, shall be made at the Contractor's expense. Notice of the time of all tests to be made at the site shall be given to all interested parties, including the Owner.

**16.3** Without additional cost to the Owner, the Contractor shall promptly furnish facilities, labor and materials necessary to coordinate and perform operational tests and checkout of the Work. The Contractor shall furnish promptly all reasonable facilities, labor, and materials necessary to make all such testing safe and convenient.

**16.4** If, at any time before final payment and Acceptance of the Work, the Commissioner considers it necessary or advisable to examine of any portion of the Work already completed by removing or tearing out the same, the Contractor shall, upon request, furnish promptly all necessary facilities, labor, and materials. If such Work is found to be defective in any material respect, as determined by the Owner, because of a fault of the Contractor or any of the Contractor's Subcontractors, or if any Work shall have been covered without the approval or consent of the Commissioner (whether or not it is found to be defective), the Contractor shall be liable for testing costs and all costs of correction, including removal and/or demolition of the defective Work, including labor, material, and testing, including labor, material, re-testing or re-inspecting, services of required consultants, additional supervision, the Commissioner's and the Construction Administrator's administrative costs, and other costs for services of other consultants.

**16.5 Cost of Systems Commissioning Retesting:** The cost to retest a pre-functional or functional test, if the Contractor is responsible for the deficiency, shall be the Contractor's. If

the Contractor is not responsible, any cost recovery for retesting costs shall be negotiated with the Contractor.

**16.5.1** For a deficiency identified, not related to any pre-functional checklist or start-up fault, the following shall apply: The Systems Commissioning Authority (SCA) and Construction Administrator will direct the retesting of the equipment once at no "charge" to the Contractor for their time. However, the Systems Commissioning Authority's and Construction Administrator's time for additional testing will be charged to the Contractor.

**16.5.2** The time for the Systems Commissioning Authority and Construction Administrator to direct any retesting required because a specific pre-functional checklist or start-up test item, reported to have been successfully completed, but determined during functional testing to be faulty, will be back charged to the Contractor.

**16.5.3** Any required retesting by any Subcontractor shall not be considered a justified reason for a claim of delay or for a time extension by the Contractor.

## **ARTICLE 17** **ROYALTIES AND PATENTS**

**17.1** If the Contractor desires to use any design, device, material or process covered by a patent or copyright, the Contractor shall provide for such use by suitable legal agreement with the holder of said patent or copyright. The Contractor shall furnish a copy of this legal agreement to the Owner.

**17.2** The Contractor shall indemnify and hold harmless the Owner and Construction Administrator for any costs, expenses and damage which it may be obliged to pay by reason of any infringement of a patent or a copyright, at any time during the prosecution or after the Final payment of the Work.

## **ARTICLE 18** **SURVEYS, PERMITS AND REGULATIONS**

**18.1** Unless otherwise provided for, the Contractor shall furnish surveys necessary for the execution of the Work. The Owner will furnish the Contractor with two base lines and a benchmark.

**18.2** The Contractor shall obtain and pay for permits and licenses necessary for the execution of the Work and the occupancy and use of the completed Work.

**18.3** The Contractor shall give all notices and comply with all laws, ordinances, rules and regulations including building and fire safety codes relating to the performance of the Work.

**18.4** If underground utilities may be involved in part of the Work the Contractor is required to request "Call-Before-You-Dig" to verify the location of underground utilities at least (3) Working Days, as further defined under Paragraph 1.71 herein, prior to the start of any excavation. The Contractor shall also notify the Owner and Agency at least (3) Working Days prior to the start of any excavation. If "Call-Before-You-Dig" fails or refuses to respond to the Contractor's request, then the Contractor shall obtain the services of a qualified underground utility locating firm, at no additional cost to the Owner, to verify locations of underground utilities prior to the start of any excavation. The Contractor shall be held responsible for providing safety, protecting the Work and protecting workmen as necessary to perform the Work. The Contractor shall be responsible for maintaining and protecting all original utility mark-out at no additional cost to the Owner.

**ARTICLE 19**  
**PROTECTION OF THE WORK,  
PERSONS AND PROPERTY**

**19.1** The Contractor shall continuously and adequately protect the Work against damage from any cause, and shall protect materials and supplies furnished by the Contractor or Subcontractors, whether or not incorporated in the Work, and shall make good any damage unless it be due directly to errors in the Contract Documents or is caused by agents or employees of the Owner.

**19.2** To the extent required by law, by public authority, or made necessary in order to safeguard the health and welfare of the personnel or occupants of any of the state institutions, the Contractor shall adequately protect adjacent property and persons, and provide and maintain all facilities, including but not limited, to passageways, guard fences, lights, and barricades necessary for such protection.

**19.3** The Contractor shall take all necessary precautions for the safety of employees on the Work and shall comply with applicable provisions of federal and state safety laws and building codes to prevent accidents or injury to persons on, about, or adjacent to the premises where the Work is being performed. The Contractor shall also comply with the applicable provisions of the Associated General Contractors' "Manual of Accident Prevention in Construction", the standards of the Connecticut Labor Department and Occupational Safety and Hazard Association (OSHA).

**19.4** The Contractor shall erect and properly maintain at all times, as required by the conditions and progress of the Work, all necessary safeguards for the protection of employees of the State and the public, and shall post danger signs warning against any dangerous condition or hazard created

by such things as protruding nails, well holes, elevator hatchways, scaffolding, window openings, excavations, tripping hazards or slipping, stairways and falling materials.

**19.5** The Contractor shall designate a qualified and responsible on-site staff person, whose duty shall be the prevention of accidents. The name and position of the designated person shall be reported to the Owner by the Contractor at the commencement of the Contract.

**19.6** The Contractor shall at all times protect excavations, trenches, buildings, and all items of Work from damage by rain, water from melted snow or ice, surface water run off and subsurface water usual for the vicinity at the time of operations; and provide all pumps and equipment and enclosures to insure such protection.

**19.7** The Contractor shall construct and maintain all necessary temporary drainage and provide all pumping necessary to keep excavation, basements, footings and foundations free of water.

**19.8** The Contractor shall remove all snow and ice as may be required for access to the site and proper protection and prosecution of the Work.

**19.9** The Contractor shall install bracing, shoring, sheathing, sheet piling, caissons and any other underground facilities as required for safety and proper execution of the Work, and shall remove this portion of the Work when no longer necessary.

**19.10** During cold weather the Contractor shall protect all Work from damage. If low temperature makes it impossible to continue operations safely in spite of cold weather precautions, the Contractor may cease Work upon the written approval of the Commissioner.

**ARTICLE 20**  
**TEMPORARY UTILITIES**

**20.1** Unless expressly provided for otherwise in the Contract Documents, the Contractor shall include in the proposed contract bid price as stated on the Bid Proposal Form, the costs of all temporary utilities required for Project completion and protection of the Work. Said temporary utilities include, but are not limited to, lighting, heating, cooling, electrical power, water, telephone, sanitary facilities, and potable water.

**ARTICLE 21**  
**CORRECTION OF WORK**

**21.1** The Contractor shall promptly and without expense to the Owner remove from the premises all materials rejected by or unacceptable to the Commissioner as failing to conform to the Contract Documents, whether incorporated in the Work or not.

**21.2** The Contractor shall promptly and without expense to the Owner replace any such materials, which do not conform to the Contract Documents, and shall bear the expense of making good all Work of other Contractors or Subcontractors destroyed or damaged by such removal or replacement.

**21.3** If the Contractor, after receipt of notice from the Owner, shall fail to remove such rejected or unacceptable materials within a reasonable time as fixed in said notice, the Owner may remove and store such materials at the expense of the Contractor.

**21.4** Such action shall not affect the obligation of the Contractor to replace and complete assembly and installation of the Work and to bear the expenses referred to above. Prior to the correction of rejected or unacceptable Work or if the Commissioner deems it inexpedient or undesirable to correct any portion of the Work which was rejected, deemed unacceptable, or not done in accordance with the Contract Documents, the Contract Sum shall be reduced by such amount as, in the judgment of the Commissioner, shall be equitable.

**21.5** No extension of time will be given to the Contractor for correction of rejected or unacceptable Work. All significant punchlist Work shall be completed before Substantial Completion is determined. The remaining minor punchlist Work, as determined by the Commissioner, shall be completed within ninety (90) Days of established Substantial Completion date.

**21.6** Final Payment shall not relieve the Contractor of responsibility for the defects in material or workmanship.

**21.7** Unless expressly provided for otherwise in the Contract Documents, the Contractor shall remedy any rejected or unacceptable Work, and any Work found to be not conforming to the Contract Documents which is discovered within 18 Months after the date of Substantial Completion. The Contractor shall pay for any damage to other Work caused by such nonconforming Work or any damage created in correcting the nonconforming Work.

## **ARTICLE 22** **GUARANTEES and WARRANTIES**

**22.1** Unless expressly provided for otherwise in the Contract Documents, the Contractor shall provide a Warranty on the Work for an 18-Month period from the date of Substantial Completion. The Contractor shall warrant that the equipment,

materials and workmanship are of good quality and new, unless permitted elsewhere by the Contract Documents, and that the Work shall be free from defects not inherent in the quality required or permitted and that the Work conforms to the Contract Documents.

**22.2** Disclaimers and limitations from manufactures, Subcontractors, suppliers or installers to the Contractor shall not relieve the Contractor of the Warranty on the Work. The Contract Documents detail the related damages, reinstatement of Warranty, replacement cost and Owner's recourse.

## **ARTICLE 23** **CUTTING, FITTING, PATCHING, AND DIGGING**

**23.1** The Contractor will perform or will cause the Subcontractors to perform all cutting, fitting, or patching of the portion(s) of the Work that may be required to make the several parts thereof joined and coordinated in a manner satisfactory to the Commissioner and in accordance with the Plans and Specifications.

**23.2** The responsibility for defective or ill-timed Work shall be with the Contractor, but such responsibility shall not in any way relieve the Subcontractor who performed such Work. Except with the consent of the Commissioner, neither the Contractor nor any of its Subcontractors shall cut or alter the Work of any other Contractor or Subcontractor.

## **ARTICLE 24** **CLEANING UP**

**24.1** The Contractor shall, on a daily basis, keep the premises free from accumulations of waste material or rubbish.

**24.2** Prior to Acceptance of the Work, the Contractor shall remove from and about the site of the Work, all rubbish, all temporary structures, tools, scaffolding, and surplus materials, supplies, and equipment which may have been used in the performance of the Work. If the Commissioner in his sole discretion determines that the Contractor has failed to clean

the work site, the Owner may remove the rubbish and charge the cost of such removal to the Contractor. A deduct Change Order will be issued by the Owner to recover such cost.

## **ARTICLE 25** **ALL WORK SUBJECT TO CONTROL OF THE COMMISSIONER**

**25.1** The Commissioner hereby declares that the DPW Project Manager is the Commissioner's only authorized repre-

sentative to act in matters involving the Owner's, and/or Architect's or Engineer's, ability to revoke, alter, enlarge or relax any requirement of the Contract Documents; to settle disputes between the Contractor and the Construction Administrator; and act on behalf of the Commissioner. In all such matters, the provisions of Articles 13 and 14 herein shall guide the DPW Project Manager.

**25.2** In no event may the Contractor act on any instruction of the Agency without written consent of the Owner. In the event the Contractor acts without such consent, he does so at his own risk and at his own expense, not only for the Work performed, but for the removal of such Work as determined necessary by the Commissioner.

**25.3** In the performance of the Work, The Contractor shall abide by all orders, directions, and requirements of the Commissioner at such time and places and by such methods and in such manner and sequence as the Commissioner may require.

**25.4** The Commissioner shall determine the amount, quality, acceptability and fitness of all parts of the Work, shall interpret the plans, Specifications, Contract Documents and extra work orders and shall decide all other questions in connection with the Work.

**25.5** The Contractor shall employ no plant, equipment, materials, methods, or persons to which the Commissioner objects and shall remove no plant materials, equipment, or other facilities from the site of the Work without the permission of the Commissioner. Upon request, the Commissioner shall confirm in writing any oral order, direction, requirement or determination.

**25.6** In accordance with Section 4b-24 of the Connecticut General Statutes, the public auditors of the State of Connecticut and the auditors or accountants of the Commissioner of Public Works shall have the right to audit and make copies of the books of any Contractor employed by the Commissioner.

**ARTICLE 26**  
**AUTHORITY OF THE CONSTRUCTION**  
**ADMINISTRATOR**

**26.1** The Construction Administrator employed by the Commissioner is authorized to inspect all Work for conformance to the Contract Documents. The Construction Administrator is authorized to reject all Work found to be defective, unacceptable and nonconforming to the Contract Documents. Such inspections and rejections may extend to all or any part of the Work, and to the preparation or manufacture of the material to be used.

**26.2** The Construction Administrator is not empowered to revoke, alter, enlarge, or relax any requirements of the Contract Documents, or to issue instructions contrary to the Contract Documents. The Construction Administrator shall in no case act as foreman or perform other duties for the Contractor, nor shall the Construction Administrator interfere with the management of the Work by the Contractor. Any advice, which the Construction Administrator may give the Contractor, shall in no way be construed as binding the Commissioner or Owner in any way, nor releasing the Contractor from the fulfillment of the terms of the Contract.

**26.3** In any dispute arising between the Contractor and the Construction Administrator with reference to inspection and rejection of the Work, the Construction Administrator may suspend Work on the non-compliant portion of the Work until the dispute can be referred to and decided by the Commissioner.

**ARTICLE 27**  
**SCHEDULE OF VALUES,**  
**APPLICATION FOR PAYMENT**

**27.1** Immediately after the signing of the Contract, the Contractor shall furnish for the use of the Commissioner, as a basis for estimating partial payments, a certified Schedule of Values, totaling the Contract Sum and broken down into quantities and unit costs, as outlined in the Contract Documents and as directed by the Owner. The Schedule of Values must reflect true costs and be in sufficient detail to be an effective tool for monitoring the progress of the Work. Upon request of the Commissioner; the Contractor shall supply copies of signed Contracts, vendor quotations, etc. as back up to the Schedule of Values.

**27.2** Approval of the Schedule of Values by the Commissioner is required prior to any payment by the Owner.

**27.3** The Schedule of Values shall include a breakdown of the Contractor's general condition costs.

**27.3.1** Non-recurring costs, (i.e. Mobilization costs, utility hook-ups, temporary heat) will be paid at the time of occurrence.

**27.3.2** Reoccurring costs will be paid in proportion to the percent of completion of the Project.

**27.3.3** Further detail can be found in the General Requirements 01.29.76; paragraphs 1.3.B.4 for this project.

**27.4** The Schedule of Values shall include a breakdown of Contract closeout costs including systems certification testing and acceptance, training, Warranties, Guarantees, As-Built Drawings and attic stock.

**27.5** The Contractor shall make periodic applications for payment, which shall be subdivided into categories corresponding with the approved Schedule of Values and shall be in such numbers of copies as may be designated by the Commissioner.

**ARTICLE 28**  
**PARTIAL PAYMENTS**

**28.1** Commissioner will examine the Contractor's Applications For Payments to determine, in the opinion of the Commissioner, the amounts that properly represent the value of the Work completed and the materials suitably stored on the site.

**28.2** In making such Application For Payment for the Work, there shall be deducted seven and one-half percent (7.5%) of the amount of each Application for Payment to be retained by the Owner as Retainage until Final Completion.

**28.2.1** The Commissioner has the sole discretion in the determination of reduction in Retainage. At fifty percent (50%) completion of the Work the Owner shall issue a "Contractor's Performance Evaluation". If the Contractor receives a performance evaluation score of "Good" or better, then the Retainage withheld may be reduced to five percent (5%). All subsequent Applications for Payment shall be subject to five percent (5%) Retainage. Upon Substantial Completion, the Retainage may be reduced at the request of the Contractor and recommendation of the DPW Project Manager. In the event of a reduction in Retainage to below five percent (5%), the minimum Retainage withheld shall not be less than the DPW Project Manager's estimate of the remaining Work or two and one-half percent (2.5%), which ever is greater. All requests for Retainage Reduction shall be done on DPW Form 748F\_Retainage Reduction Request, which can be found at the end of the General Conditions.

**28.2.2** Subsequent to Substantial Completion, in limited circumstances, at the sole discretion of the Commissioner, a reduction of Retainage below Two and one-half percent (2.5%) may be considered.

**28.2.3** A "Good" Contractor's Performance Evaluation score shall be defined as a minimum total score of sixty percent (60%).

**28.3** The decision of the Commissioner to reduce the Retainage rate will be based upon the Contractor's Performance Evaluation score for completed portions of the Work as set out above and other factors that the Commissioner may find appropriate as follows:

**28.3.1** The Contractor's timely submission of an appropriate and complete CPM Schedule or Construction Schedule and Schedule of Values, in compliance with

the Contract requirements and the prompt resolution of the Owner's and/or Architect's or Engineer's comments on the submitted material resulting in an appropriate basis for progress of the Work.

**28.3.2** The Contractor's timely and proper submission of all Contract Document required submissions: including, but not limited to, Shop Drawings, material certificates and material samples and the prompt resolution of the Owners and/or Architect's or Engineer's comments on the submitted material, resulting in an appropriate progress of the Work.

**28.3.3** The Contractor's provision of proper and adequate supervision and home office support of the Project.

**28.3.4** The Work completed to date has been installed or finished in a manner acceptable to the Owner.

**28.3.5** The progress of the Work is consistent with the approved CPM Schedule or Construction Schedule.

**28.3.6** All approved credit change orders have been invoiced.

**28.3.7** All Change Order requests for pricing are current.

**28.3.8** The Contractor has and is maintaining a clean worksite in accordance with the Contract Documents.

**28.3.9** All Subcontractor payments are current at the time of reduction request.

**28.3.10** Contractor is compliant with set-aside provisions of the contract.

**28.4** No payments will be made for improperly stored or protected materials or unacceptable Work.

**28.5** At his or her sole discretion, the Commissioner may allow to be included in the monthly requisitions payment requests for materials and equipment stored off the site.

**28.5.1** In the event the Commissioner allows the Contractor to include in its requisitions payment requests for materials and equipment stored off the site, the Contractor shall also submit any additional bonds and/or insurance certificates relating to off-site stored materials and equipment, and follow such other procedures as may be required by the State to obtain the Commissioner's approval of such requests.

**28.5.2** The Architect or Engineer, or Construction Administrator shall have inspected said materials and equipment and recommended payment therefore. The Contractor shall pay for the cost of the Architect's or Engineer's, or Construction Administrator's time and expense in performing these inspection services.

**ARTICLE 29**  
**DELIVERY OF STATEMENT SHOWING**  
**AMOUNTS DUE FOR WAGES, MATERIALS, AND**  
**SUPPLIES**

**29.1** For each Application for Payment under this Contract, the Owner reserves the right to require the Contractor and every Subcontractor to submit a written verified statement, in a form satisfactory to the Owner, showing in detail all amounts then due and unpaid by such Contractor or Subcontractor for daily or weekly wages to all laborers employed by it for the performance of the Work or to other persons for materials, equipment or supplies delivered at the site.

**29.2** The term "laborers" as used herein shall include workmen, workwomen, and mechanics.

**29.3** Failure to comply with this requirement may result in the Owner withholding the Application for Payment pursuant to Article 28.

### **ARTICLE 30**

#### **SUBSTANTIAL COMPLETION AND ACCEPTANCE**

##### **30.1 Substantial Completion:**

**30.1.1** When the Contractor considers that the Work or a portion thereof is Substantially Complete, the Contractor shall request an inspection of said Work in writing to the Construction Administrator. The request shall certify that the Contractor has completed its own inspection prior to the request and that the Contractor is compliant with all requirements of Section 01 77 00 of the General Requirements. The request must also include a statement that a principal or senior executive of the Contractor is ready, willing and able to attend a walk through inspection with the Architect or Engineer.

**30.1.2** Upon receipt of the request, the Architect or Engineer, Construction Administrator and Owner, will make an inspection to determine if the Work or designated portion thereof is Substantially Complete. A principal or senior executive of the Contractor shall accompany the Architect or Engineer during each inspection/re-inspection. If the inspection discloses any item, whether or not included on the inspection list, which is not in accordance with the re-

quirements of the Contract Documents, the Contractor shall, before issuance of the Certificate of Substantial Completion, complete or correct such item.

**30.1.3** The Contractor shall then submit a request for another inspection. The determination of Substantial Completion is solely within the discretion of the Owner. Any costs for re-inspection beyond one, shall be at the expense of the Contractor and such costs will be recovered by issuance of a credit Change Order. When the Work or designated portion thereof is determined to be Substantially Complete, the Contractor will be provided a Certificate of Substantial Completion from the Owner. The Certificate of Substantial Completion shall establish the date when the responsibilities of the Contractor for security, maintenance,

heat, utilities, damage to the Work, and insurance, are transferred to the Owner and shall fix the time within which the Contractor shall finish all items on the inspection list accompanying the Certificate. If the punch list is not complete in 90 Days, the Owner reserves the right to complete the outstanding punch list items with their own forces or by awarding separate contracts and to deduct the cost thereof from the amounts remaining due to the Contractor.

**30.1.4** The Certificate of Substantial Completion shall be signed by the Construction Administrator, Owner, and Architect or Engineer. Upon Substantial Completion of the Work or designated portion thereof and upon application by the Contractor and certification by the Construction Administrator and Architect or Engineer, the Owner shall make payment reflecting adjustment in Retainage, if any, for such Work or portion thereof as provided in the Contract Documents.

##### **30.2 Acceptance:**

**30.2.1** Upon completion of the Work, the Contractor shall forward to the Construction Administrator a written notice that the Work is ready for inspection and Acceptance.-

**30.2.2** When the Work has been completed in accordance with terms and conditions of the Contract Document as determined by the Owner a Certificate of Acceptance shall be issued by the Owner.

### **ARTICLE 31** **FINAL PAYMENT**

**31.1** The Owner reserves the right to retain for a period of thirty (30) Days after filing of the Certificate of Acceptance the amount therein stated less all prior payments and advances whatsoever to or for the account of the Contractor.

**31.2** All prior estimates and payments, including those relating to extra or additional Work, shall be subject to correction by the Final Payment.

**31.3** No Application for Payment, Final or Partial, shall act as a release to the Contractor or the Contractor's sureties from any obligations under this Contract.

**31.4** The Architect or Engineer and Construction Administrator will promptly issue the Certificate for Payment, stating that to the best of their knowledge, information and belief, and on the basis of their observations and inspections, the Work has been completed in accordance with terms and conditions of the Contract Documents and that the entire balance found to be due the Contractor and noted in said Final Payment is due and payable.

**31.5** Final Payment shall not be released until a Certificate of Acceptance and a Certificate of Compliance have been issued.

**31.6** Neither Final Payment nor any Retainage shall become due until the Contractor submits to the Owner the following:

**31.6.1** An affidavit that payrolls, bills for materials and equipment, and other indebtedness connected with the Work for which the Owner or the Owner's property might be responsible or encumbered (less amounts withheld by Owner) have been paid or otherwise satisfied.

**31.6.2** A certificate evidencing that insurance required by the Contract Documents to remain in force after Final Payment is currently in effect and will not be canceled or allowed to expire without at least 30 Days prior written notice to the Owner.

**31.6.3** A written statement that the Contractor knows of no substantial reason that the insurance will not be renewable to cover the period required by the Contract Documents.

**31.6.4** Written consent of surety, if any, to Final Payment.

**31.6.5** If required by the Owner, other data establishing payment or satisfaction of obligations, such as receipts, releases and waivers of liens, claims, security interests or encumbrances arising out of the Contract, to the extent and in such form as may be designated by the Owner. If a Subcontractor refuses to furnish a release or waiver required by the Owner, the Contractor may furnish a bond satisfactory to the Owner to indemnify the Owner against such lien. If such lien remains unsatisfied after payments are made, the Contractor shall refund to the Owner all money that the Owner may be compelled to pay in discharging such lien, including all costs and reasonable attorney's fees.

### ARTICLE 32

#### **OWNER'S RIGHT TO WITHHOLD PAYMENTS**

**32.1** The Commissioner may withhold a portion of any Payment due the Contractor that may, in the judgment of the Commissioner, be necessary:

**32.1.1** To assure the payment of just claims then due and unpaid to any persons supplying labor or materials for the Work.

**32.1.2** To protect Owner from loss due to defective, unacceptable or non-conforming Work not remedied by the Contractor.

**32.1** To protect the Owner from loss due to injury to persons or damage to the Work or property of other Contractors, Subcontractors, or others caused by the act or neglect of the Contractor or any of its Subcontractors.

**32.2** The Owner shall have the right to apply any amount

withheld under this Article as the Owner may deem proper to satisfy protection from claims. The amount withheld shall be considered a payment to the Contractor.

**32.3** The Owner has the right to withhold payment if the Contractor fails to provide accurate submissions of Submittals, up date the status including but not limited to the following: As-Built Drawings, request for information (RFI) log, Schedule, submittal log, Change Order log, certified payrolls and daily reports and all other requirement of the Contract Documents.

**32.4** If a Subcontractor refuses to furnish a release or waiver required by the Owner, the Contractor may furnish a bond satisfactory to the Owner to indemnify the Owner against such lien. If such lien remains unsatisfied after payments are made, the Contractor shall refund to the Owner all money that the Owner may be compelled to pay in discharging such lien, including all costs and reasonable attorney's fees.

### ARTICLE 33

#### **OWNER'S RIGHT TO STOP WORK OR TERMINATE CONTRACT**

**33.1** The Commissioner shall have the authority to suspend the Work wholly or in part, for such period or periods as the Commissioner considers being in the best interests of the State, or in the interests of public necessity, convenience or safety. During such periods the Contractor shall store all materials and equipment, in such a manner to prevent the materials and equipment from being damaged in any way, and the Contractor shall take precautions to protect the Work from damage.

**33.1.1** If the Commissioner, in writing, orders the performance of all or any portion of the Work to be suspended or delayed for an unreasonable period of time (i.e. not originally anticipated, customary, or inherent in the construction industry) and the Contractor believes that additional compensation and/or Contract Time is due as a result of such suspension or delay, the Contractor shall submit to the Commissioner in writing a request for a Contract adjustment within 7 Days of receipt of the notice to resume Work. The request shall set forth the specific reasons and support for said adjustment.

**33.1.2** The Commissioner shall evaluate any such requests received. If the Commissioner agrees that the cost and/or time required for the performance of the Contract has increased as a result of such suspension and that the suspension was caused by conditions beyond the control of and not the fault of the Contractor, its suppliers, or Subcontractors, and was not caused by weather, then the Commissioner will make a reasonable adjustment, excluding profit, of the Contract terms. The Commissioner will notify the Contractor of the determination as to what adjustments of

the Contract, if any, that the Commissioner deems warranted.

**33.1.3** No Contract adjustment will be made unless the Contractor has submitted the request for adjustment within the time prescribed.

**33.1.4** No Contract adjustment will be made under this Article to the extent that performance would have been suspended or delayed by any other cause within the Contractor's control or by any factor for which the Contractor is responsible under the Contract; or that such an adjustment is provided for or excluded under other term or condition of this Contract.

**33.2** Notwithstanding any provision or language in the Contract to the contrary, the State may terminate the Contract whenever the Commissioner determines at his sole discretion that such termination is in the best interests of the State. Any such termination shall be effected by delivery to the Contractor of a written Notice of Termination specifying the extent to which performance of Work under the Contract is terminated, and the date upon which such termination shall be effective.

**33.2.1** In the event of such termination, the Contractor shall be entitled to reasonable compensation as determined by the Commissioner, however, no claim for lost Overhead or profits shall be allowed.

**33.2.2** All Work and materials obtained by the Contractor for the Work, that have been incorporated into the Work, inspected, tested as required, accepted by the Commissioner, and paid for by the State, shall become the property of the State.

**33.2.3** Materials obtained by the Contractor for the Work that have been inspected, tested as required, and accepted by the Commissioner, and that are not incorporated into the Work, shall, at the option of the Commissioner, be purchased from the Contractor at actual cost as shown by receipted bills. To this cost shall be added all actual costs for delivery at such points of delivery as may be designated by the Commissioner, as shown by actual cost records.

**33.2.4** Termination of the Contract shall not relieve the Contractor or its Surety of their responsibilities for the completed Work, nor shall it relieve the Contractor's Surety of its obligations to ensure completion of the Work and to pay legitimate claims arising out of Work.

#### **ARTICLE 34** **SUBLETTING OR ASSIGNING OF CONTRACT**

**34.1** The Contract or any portion thereof, or the Work provided for therein, or the right, title, or interest of the Contractor therein may not be sublet, sold, transferred, assigned, or otherwise disposed of to any person, firm, or corporation without the written consent of the Commissioner.

**34.2** No person, firm, or corporation other than the Contractor to whom the Contract was awarded shall be permitted to commence Work at the site of the Contract until such consent has been granted.

#### **ARTICLE 35** **CONTRACTOR'S INSURANCE**

**35.1** The Contractor shall not start Work under the Contract until they have obtained insurance as stated in SECTIONS 00 62 16 CERTIFICATE OF INSURANCE and 00 40 13 BID PROPOSAL FORM, subsections 4.4.2 and 4.4.3, of the Project Manual and until the insurance has been approved by the Owner. The Contractor shall not allow any Subcontractor to start Work until the same insurance has been obtained by the Subcontractor and approved by the Owner or the Contractor's insurance provides coverage on behalf of the Subcontractor. The Contractor shall send Certificates of Liability Insurance to the Bidding and Contracts Unit, Department of Public Works, 165 Capitol Avenue, Room G-35, Hartford, CT 06106 unless otherwise directed in writing. Presented below is a narrative summary of the insurance required.

**35.1.1 Commercial General Liability** Insurance including contractual liability, products/completed operations, broad form property damage and independent Contractors. The limits shall be no less than \$1,000,000 each occurrence and \$2,000,000 annual aggregate. Coverage for hazards of explosion, collapse and underground (X-C-U) and for asbestos abatement when applicable to this Contract, must also be included when applicable to the Work to be performed. The State of Connecticut, the Department of Public Works, and their respective officers, agents, and employees shall be named as an Additional Insured. This coverage shall be provided on a primary basis.

**35.1.2 Owner's and Contractor's Protective Liability** insurance providing a total limit of \$1,000,000 for all damages arising out of bodily injury or death of persons in any one accident or occurrence and for all damages arising out of injury or destruction of property in any one accident or occurrence and subject to a total (aggregate) limit of \$2,000,000 for all damages arising out of bodily injury to or death of persons in all accidents or occurrences and out of injury to or destruction of property during the policy period. This coverage shall be for and in the name of the State of Connecticut.

**35.1.3 Automobile Liability** The operation of all motor vehicles including those owned, non-owned and hired or used in connection with the Contract shall be covered by Automobile Liability insurance providing for a total limit of \$1,000,000 for all damages arising out of bodily injuries to or death of all persons in any one accident or occurrence

and for all damages arising out of injury to or destruction of property in any one accident or occurrence. In cases where an insurance policy shows an aggregate limit as part of the automobile liability coverage, the aggregate limit must be at least \$2,000,000. This coverage shall be provided on a primary basis. Should the Contractor not own any automobiles, the automobile & liability requirement shall be amended to allow the Contractor to maintain only hired and non-owned liability coverage.

**35.1.4 Excess Liability** (Other than Umbrella Form) insurance in the amount of \$5,000,000 for bids of \$1,000,000 - \$10,000,000 and in the amount of \$10,000,000 for bids of \$10,000,001 - \$20,000,000. Refer to Section 00 92 00 Amendments of the Project Manual for Excess Liability insurance requirements for bids exceeding \$20,000,000.

**35.1.5 Workers' Compensation and Employer's Liability** as required by Connecticut Law and **Employers' Liability** with a limit of not less than \$100,000 per occurrence, \$500,000 disease policy limit and \$100,000 disease each employee. When Work is on or contiguous to navigable bodies of waterways and ways adjoining, the Contractor shall include the Federal Act endorsement for the U.S. Longshoremen's and Harbor Workers Act.

**35.1.6 Special Hazards Insurance**, if required, will be stated in SECTION 00 40 13 BID PROPOSAL FORM, subsection 4.4.2 of this Project Manual. This includes coverage for explosion, collapse or underground damage and for asbestos abatement when applicable to this Contract and shall be no less than \$1,000,000 each occurrence.

**35.1.7 Builder's Risk Insurance**, if required, will be stated in Section 00 40 13 Bid Proposal Form, subsection 4.4.3 of this Project Manual.

**35.1.8 Inland Marine/Transit Insurance:** With respect to property with values in excess of \$100,000 which is rigged, hauled or situated at the site pending installation, the Contractor shall maintain inland marine/transit insurance provided the coverage is not afforded by a Builder's Risk policy.

**35.1.9** When required to be maintained, the Builder's Risk and/or Inland Marine/Transit Insurance policy shall endorse the State of Connecticut as a Loss Payee and the policy shall state it is for the benefit of and payable to the State of Connecticut.

**35.2 Satisfying Limits Under an Umbrella Policy:** If necessary, the Contractor may satisfy the minimum limits required above for either Commercial General Liability, Automobile Liability, and Employer's Liability coverage under an

Umbrella or Excess Liability policy. The underlying limits may be set at the minimum amounts required by the Umbrella or Excess Liability policy provided the combined limits meet at least the minimum limit for each required policy. The Umbrella or Excess Liability policy shall have an Annual Aggregate at a limit not less than two (2) times the highest per occurrence minimum limit required above for any of the required coverages. The State of Connecticut shall be specifically endorsed as an Additional Insured on the Umbrella or Excess Liability policy, unless the Umbrella or Excess Liability policy provides continuous coverage to the underlying policies on a complete "Follow-Form" basis.

**35.3** The Contractor shall, at its sole expense, maintain in full force and effect at all times during the life of the Contract or the performance of Work hereunder, insurance coverage as described herein. Certificates shall include a minimum thirty (30)-day endeavor to notify requirement to the Owner prior to any cancellation or non-renewal.

**35.4** The Contractor shall be fully and solely responsible for any costs or expenses as a result of a coverage deductible, coinsurance penalty, or self-insured retention, including any loss not covered because of the operation of such deductible, coinsurance penalty, or self-insured retention.

**35.5** The requirement contained herein as to types and limits of insurance coverage to be maintained by the Contractor are not intended to and shall not in any manner limit or qualify the liabilities and obligations assumed by the Contractor.

**35.6 Hold Harmless Provisions:** The Contractor shall at all times indemnify and save harmless the State of Connecticut, the Department of Public Works, and their respective officers, agents, and employees, on account of any and all claims, damages, losses, litigation, expenses, counsel fees and compensation arising out of injuries (including death) sustained by or alleged to have been sustained by the officers, agents, and employees of said State or Department, or of the Contractor, his Subcontractor, or materialmen and from injuries (including death) sustained by or alleged to have been sustained by the public, any or all persons on or near the Work, or by any other person or property, real or personal (including property of said State or Department) caused in whole or in part by the acts, omissions, or neglect or the Contractor including, but not limited to, any neglect in safeguarding the Work or through the use of unacceptable materials in constructing the Work of the Contractor, any Subcontractor, materialman, or anyone directly employed by them or any of them while engaged in the performance of the Contract, including the entire elapsed time from the date of the Notice to Proceed or the actual Commencement Of The Work whichever occurs first until its completion as certified by the Department of Public Works.

**ARTICLE 36**  
**FOREIGN MATERIALS**

**36.1** Preference shall be given to articles or materials manufactured or produced in the United States, Canada, and Mexico, (the members of the North American Free Trade Agreement (NAFTA)); and the products shall meet all of the referenced standards and Specifications for conditions of performance, quality, and price with duty being equal.

**36.2** Only articles or materials manufactured or produced in the United States, Canada, and Mexico, (the members of the North American Free Trade Agreement (NAFTA)), will be allowed. The foregoing provisions shall not apply to foreign articles or materials required by the Contract Documents.

**ARTICLE 37**  
**HOURS OF WORK**

**37.1** No person shall be employed to work or be permitted to work more than eight (8) hours in any Day or more than forty (40) hours in any week for any Work provided in the Contract, in accordance with Connecticut General Statute Section 31-57.

**37.2** The operation of such limitation of hours of work may be suspended during an emergency, upon the approval of the Commissioner, in accordance with Connecticut General Statute Section 31-57.

**ARTICLE 38**  
**CLAIMS**

**38.1 General:** When filing a formal claim under Section 4-61 (referred to as "Section 4-61" below) of the Connecticut General Statutes (as revised), either as a lawsuit in the Superior Court or as a demand for arbitration, the Contractor must follow the procedures and comply with the requirements set forth in this Article. This Section does not, unless so specified, govern informal claims for additional compensation which the Contractor may bring before the Department. The Contractor should understand, however, that the Department may need, before the Department can resolve such a claim, the same kinds of documentation and other substantiation that it requires under this Article. It is the intent of the Department to compensate the Contractor for actual increased costs caused by or arising from acts or omissions on the part of the Department that violate legal or contractual duties owed to the Contractor by the Department.

**38.2 Notice of Claim:** Whenever the Contractor intends to file a formal claim against the Department under Section 4-61, seeking compensation for additional costs, the Contractor shall notify the Commissioner in writing (in strict compliance with Section 4-61) of the details of said claim. Such written notice shall contain all pertinent information described in Paragraph 38.5 below.

Once formal notice of a claim under Section 4-61(b) (as revised) has been given to the Commissioner, the claimant may not change the claim in any way, in either concept or monetary amount, (1) without filing a new notice of claim and demand for arbitration to reflect any such change, and (2) without the minimum period of six months after filing of the new demand commencing again and running before any hearing on the merits of the claim may be held. The only exception to this limitation will be for damages that continue to accrue after submission of the notice, in ways described and anticipated in the notice.

**38.3 Record Keeping:** The Contractor shall keep daily records of all costs incurred in connection with its Work on behalf of the Department. The daily records shall identify each aspect of the Project affected by matters related to any claim for additional compensation that the Contractor has filed, intends to file, or has reason to believe that it may file against the Department; the specific Project locations where Project work has been so affected; the number of people working on the affected aspects of the Project at the pertinent time(s); and the types and number of pieces of equipment on the Project site at the pertinent time(s). Any potential or anticipated effect on the Project's progress or Schedule which may result in a claim by the Contractor shall be noted contemporaneously with the cause of the effect, or as soon thereafter as possible.

**38.4 Claim Compensation:** The payment of any claim, or any portion thereof, that is deemed valid by the Department shall be made in accordance with the following provisions of this Article:

**38.4.1 Compensable Items:** The liability of the Department for claims will be limited to the following specifically identified items of cost, insofar as they have not otherwise been paid for by the Department, and insofar as they were caused solely by the actions or omissions of the Department or its agents (except that with regard to payment for extra work, the Department will pay to the Contractor the Overhead and profit percentages provided for in Article 13.):

**38.4.1.1** Additional Project-site labor expenses.

**38.4.1.2** Additional costs for materials.

**38.4.1.3** Additional, unabsorbed Project-site Overhead (e.g., for mobilization and demobilization).

**38.4.1.4** Additional costs for active equipment.

**38.4.1.5** For each Day of Project delay or suspension caused solely by actions or omissions of the Department either:

**38.4.1.5.1** an additional ten percent (10%) of the total amount of the costs identified in Subparagraphs 38.4.1.1 through 38.4.1.4 above; except that if the delay or suspension period prevented the Contractor from incurring enough Project costs under Subparagraphs 38.4.1.1 through 38.4.1.4 during that period to require a payment by the Department that would be greater than the payment described in Subparagraph 38.4.1.5.2 below, then the payment for affected home office Overhead and profit shall instead be made in the following *per diem* amount :

**38.4.1.5.2** six percent (6%) of the original total Contract amount divided by the original number of Days of Contract Time. Payment under either 38.4.1.5.1 or 38.4.1.5.2 hereof shall be deemed to be complete and mutually satisfactory compensation for any unabsorbed home office overhead and any profit related to the period of delay or suspension.

**38.4.1.6** Additional equipment costs. Only actual equipment costs shall be used in the calculation of any compensation to be made in response to claims for additional Project compensation. Actual equipment costs shall be based upon records kept in the normal course of business and in accordance with generally- accepted accounting principles. Under no circumstances shall Blue Book or other guide or rental rates be used for this purpose (unless the Contractor had to rent the equipment from an unrelated party, in which case the actual rental charges paid by the Contractor, so long as they are reasonable, shall be used). Idle equipment, for instance, shall be paid for based only on its actual cost to the Contractor.

**38.4.1.7** Subcontractor costs limited to, and determined in accordance with, Subparagraphs 38.4.1.1 through 38.4.1.5 above and applicable statutory and case law. Such Subcontractor costs may be paid for by the Department only: (a) in the context of an informal claims settlement; or (b) if the Contractor has itself paid or legally assumed, present unconditional liability for those Subcontractor costs.

**38.4.2 Excusable But Not Compensable Items:** The Contractor may be allowed Days but the Department will have no liability for the following non-compensable items:

**38.4.2.1** Abnormal or unusually severe weather

**38.4.2.2** Acts of God

**38.4.2.3** Force Majeure

**38.4.2.4** Concurrent Delay

**38.4.3 Non-Compensable Items:** The Department will have no liability for the following specifically-identified non-compensable items:

**38.4.3.1** Profit, in excess of that provided for herein.

**38.4.3.2** Loss of anticipated profit.

**38.4.3.3** Loss of bidding opportunities.

**38.4.3.4** Reduction of bidding capacity.

**38.4.3.5** Home office overhead in excess of that provided for in Subparagraph 38.4.1.5 hereof.

**38.4.3.6** Attorneys fees, claims preparation expenses, or other costs of claims proceedings or resolution.

**38.4.3.7** Subcontractor failure to perform

**38.4.3.8** Any other consequential or indirect expenses or costs, such as tort damages, or any other form of expense or damages not provided for in these specifications or elsewhere in the Contract.

**38.5 Required Claim Documentation:** All claims shall be submitted in writing to the Commissioner, and shall be sufficient in detail to enable the Department to ascertain the basis and the amount of each claim, and to investigate and evaluate each claim in detail. As a minimum, the Contractor must provide the following information for each and every claim and sub-claim asserted:

**38.5.1A** detailed factual statement of the claim, with all dates, locations and items of Work pertinent to the claim.

**38.5.2** A statement of whether each requested additional amount of compensation or extension of time is based on provisions of the Contract or on an alleged breach of the Contract. Each supporting or breached Contract provision and a statement of the reasons why each such provision supports the claim must be specifically identified or explained.

**38.5.3** Excerpts from manuals or other texts which are standard in the industry, if available, that support the Contractor's claim.

**38.5.4** The details of the circumstances that gave rise to the claim.

**38.5.5** The date(s) on which any and all events resulting in the claim occurred, and the date(s) on which conditions resulting in the claim first became evident to the Contractor.

**38.5.6** Specific identification of any pertinent document, and detailed description of the substance of any material oral communication, relating to the substance of such claim.

**38.5.7** If an extension of time is sought, the specific dates and number of Days for which it is sought, and the basis or bases for the extension sought. A critical path method, bar chart, or other type of graphical schedule that supports the extension must be submitted.

**38.5.8** When submitting any claim over \$50,000, the Contractor shall certify in writing, under oath and in accordance with the formalities required by the contract, as to the following:

**38.5.8.1** That supporting data is accurate and complete to the Contractor's best knowledge and belief;

**38.5.8.2** That the amount of the dispute and the dispute itself accurately reflects what the Contractor in good faith believes to be the Department's liability;

**38.5.8.3** The certification shall be executed by:

**38.5.8.3.1** If the Contractor is an individual, the certification shall be executed by that individual.

**38.5.8.3.2** If the Contractor is not an individual, the certification shall be executed by a senior company official in charge at the Contractor's plant or location involved or an officer or general partner of the Contractor having overall responsibility for the conduct of the Contractor's affairs.

**38.6 Auditing of Claims:** All claims filed against the Department shall be subject to audit by the Department or its agents at any time following the filing of such claim. The Contractor and its Subcontractors and suppliers shall cooperate fully with the Department's auditors. Failure of the Contractor, its Subcontractors, or its suppliers to maintain and retain sufficient records to allow the Department or its agents to fully evaluate the claim shall constitute a waiver of any portion of such claim that cannot be verified by specific, adequate, contemporaneous records, and shall bar recovery on any claim or any portion of a claim for which such verification is not produced. Without limiting the foregoing requirements, and as a minimum, the Contractor shall make available to the Department and its agents the following documents in connection with any claim that the Contractor submits:

**38.6.1** Daily time sheets and foreman's daily reports.

**38.6.2** Union agreements, if any.

**38.6.3** Insurance, welfare, and benefits records.

**38.6.4** Payroll register.

**38.6.5** Earnings records.

**38.6.6** Payroll tax returns.

**38.6.7** Records of property tax payments.

**38.6.8** Material invoices, purchase orders, and all material and supply acquisition contracts.

**38.6.9** Materials cost distribution worksheets.

**38.6.10** Equipment records (list of company equipment, rates, etc.).

**38.6.11** Vendor rental agreements.

**38.6.12** Subcontractor invoices to the Contractor, and the Contractor's certificates of payments to Subcontractors.

**38.6.13** Subcontractor payment certificates.

**38.6.14** Canceled checks (payroll and vendors).

**38.6.15** Job cost reports.

**38.6.16** Job payroll ledger.

**38.6.17** General ledger, general journal (if used), and all subsidiary ledgers and journals, together with all supporting documentation pertinent to entries made in these ledgers and journals.

**38.6.18** Cash disbursements journals.

**38.6.19** Financial statements for all years reflecting the operations on the Project.

**38.6.20** Income tax returns for all years reflecting the operations on the Project.

**38.6.21** Depreciation records on all company equipment, whether such records are maintained by the company involved, its accountant, or others.

**38.6.22** If a source other than depreciation records is used to develop costs for the Contractor's internal purposes in establishing the actual cost of owning and operating equipment, all such other source documents.

**38.6.23** All documents which reflect the Contractor's actual profit and overhead during the years that the Project was being performed, and for each of the five years prior to the commencement of the Project.

**38.6.24** All documents related to the preparation of the Contractor's bid, including the final calculations on which the total proposed Contract bid price as stated in the Bid Proposal Form was based.

**38.6.25** All documents which relate to the claim or to any sub-claim, together with all documents that support the amount of damages as to each claim or sub-claim.

**38.6.26** Worksheets used to prepare the claim, which indicate the cost components of each item of the claim, including but not limited to the pertinent costs of labor, benefits and insurance, materials, equipment, and Subcontractors' damages, as well as all documents which establish the relevant time periods, individuals involved, and the Project hours and the rates for the individuals.

**38.6.27** The name, function, and pertinent activity of each Contractor's or Subcontractor's official, or employee, involved in or knowledgeable about events that give rise to, or facts that relate to, the claim.

**38.6.28** The amount(s) of additional compensation sought and a break-down of the amount(s) into the categories specified as payable under Paragraph 38.4 above.

**38.6.29** The name, function, and pertinent activity of each Department official, employee, or agent involved in or

knowledgeable about events that give rise to, or facts that relate to, the claim.

**ARTICLE 39**  
**DIESEL VEHICLE EMISSIONS CONTROL**

**39.1** The Contractor shall be responsible for compliance with the following provisions:

**39.1.1** All Contractor and Subcontractor diesel powered non-road construction equipment with engine horsepower (HP) ratings of 60 HP and above, that are on the Project or are assigned to the Contract for a period in excess of 30 consecutive Days, shall be retrofitted with emission control devices in order to reduce diesel emissions. In addition, all motor vehicles and/or construction equipment (both on-highway and non-road) shall comply with all pertinent State and Federal regulations relative to exhaust emission controls and safety.

**39.1.2** Retrofit emission control devices shall consist of oxidation catalysts, or similar retrofit equipment control technology that is:

**39.1.2.1** Included on the U.S. Environmental Protection Agency (EPA) "Verified Technology List," as may be amended from time to time

<http://www.epa.gov/otaq/retrofit/retroverifiedlist.htm> and

**39.1.2.2** Verified by EPA to provide a minimum emissions reduction of 20% particulate matter (PM<sub>10</sub>), 40% carbon monoxide (CO), and 50% hydrocarbons (HC).

**39.1.3** Construction shall not proceed until all diesel powered non-road construction equipment meeting the criteria in provision 39.1.1 have been retrofitted, unless the Commissioner grants a waiver under provision 39.2.

**39.1.4** The Contractor shall at least monthly, assess which diesel powered non-road construction equipment are subject to these provisions. The Contractor shall notify the DPW Project Manager of any violations of these provisions.

**39.1.5** Idling of delivery and/or dump trucks, or other diesel powered equipment shall be limited to three (3) minutes during non-active use in accordance with the Regulations of Connecticut State Agencies Section 22a-74-18(b)(3)(C), which states, in part:

*"[N]o person shall cause or allow a Mobile Source to operate for more than three (3) consecutive minutes when such Mobile Source is not in motion, except as follows:*

*When a Mobile Source is forced to remain motionless because of traffic conditions or mechanical difficulties over which the operator has no control,*

*When it is necessary to operate defrosting, heating or cooling equipment to ensure the safety or health of the driver or passengers,*

*When it is necessary to operate auxiliary equipment that is located in or on the Mobile Source to accomplish the intended use of the Mobile Source, (To bring the Mobile Source to the manufacturer's recommended)*

*When a Mobile Source is in queue to be inspected by U.S. military personnel prior to gaining access to a U.S. military installation."*

**39.1.6** All Work shall be conducted to ensure that no harmful effects are caused to adjacent Sensitive Receptor Sites. Diesel powered engines shall be located away from fresh air intakes, air conditioners, and windows.

**39.1.7** If any diesel powered non-road construction equipment is found to be in non-compliance with these provisions by the DPW Project Manager, the Contractor will be issued a Non-Conformance Notice and given a 24 hour period in which to bring the equipment into compliance or remove it from the Project. The Contractor's failure to comply with these provisions shall be reason to withhold payment as described in Article 33.

**39.1.8** Any costs associated with these provisions shall be included in the general cost of the contract. In addition, there shall be no time granted to the Contractor for compliance with these provisions. The Contractor's compliance with these provisions and any associated regulations shall not be grounds for a Change Order.

**39.2** The Commissioner reserves the right to waive all or portions of these provisions at his/her discretion. The Contractor may request a waiver to all or portions of these provisions with written justification to the Commissioner as to why the Contractor cannot comply with these provisions. A waiver, to be effective, must be granted in writing by the Commissioner.

**END**



State of Connecticut



Department of Public Works

## Retainage Reduction Request

To: David O'Hearn, P.E., Deputy Commissioner  
Room 473B, 165 Capitol Avenue, Hartford, CT 06106

From: ( ), General Contractor

Subject: Project No. ( )  
Reduction of Retainage at ( )% project completion

In accordance with the General Conditions, Article 28, (type general contractor's name) hereby requests a reduction of retainage to an amount of XX%. The following list of items required under the general conditions is in compliance with the terms of the contract and has been verified by the Contractor.

- Performance Evaluation is a minimum of 60%
- Timely submission of an appropriate and complete CPM Schedule or Construction Schedule and Schedule of Values, in compliance with the Contract requirements and the prompt resolution of the Owner's and/or A-E's comments on the submitted material resulting in an appropriate basis for progress of the Work.
- Timely and proper submission of all Contract Document required submissions: including but not limited to Shop Drawings, material certificates and material samples and the prompt resolution of the Owner's and/or Architect's or Engineer's comments on the submitted material resulting in an appropriate progress of the Work.
- Proper and adequate supervision and home office support of the Project.
- The Work completed to date has been installed or finished in a manner acceptable to the Owner.
- The progress of the Work is consistent with the approved CPM Schedule or Construction Schedule.
- All approved credit Change Orders have been invoiced.
- All Change Order requests for pricing are current.
- The Contractor has and is maintaining a clean worksite in accordance with the Contract Documents.
- All Subcontractor payments are current at the time of reduction request.
- Contractor is compliant with set-aside provisions of the contract.

**Contractor Certification**

\_\_\_\_\_ name signature date

**Project Manager Recommendation**

\_\_\_\_\_ name signature date

**Approved**

Deputy Commissioner David O'Hearn signature date



## **SUPPLEMENTARY GENERAL CONDITIONS**

### **1. SCOPE AND LOCATION OF WORK**

- a. The work in connection with the subject project involves IT upgrades to the existing residence apartments/rooms and Wireless Access Points (WAPs) structured cabling system in Litchfield Residence Hall, located on the Midtown Campus of Western Connecticut State University, Danbury, Connecticut.
- b. All work shall be coordinated with the University Representative/Construction Administrator for this project, and the General Contractor-of-record for the Litchfield Hall Major Renovations project.
- c. This contract will include all new items unless otherwise approved.
- d. The referencing project name and no. are as follows:

**Project Name: Litchfield Residence Hall IT Infrastructure Upgrades**  
**Project No.: BI-RD 291**

- e. It is the intention of the project to end up with a complete, finished, code compliant, safe university facility.

### **2. UNIVERSITY REPRESENTATIVE**

- a. The University Representative/Construction Administrator is Eric J. Lessne, Associate Director for Project Management and Engineering, CSCU; cell no. 860-982-8364; Western Connecticut State University, Facilities Planning and Engineering Department; 181 White Street, Danbury, CT 06810, telephone: 203-837-8679.

### **3. EXAMINATION OF SITE**

- a. It is not the intent of the drawings to show all existing conditions. All bidders are required to visit and examine the site prior to submitting bids. Failure to visit the site and note all conditions will in no way relieve the Contractor of his responsibility for completing the work called for in the contract documents.

### **4. INTENT OF DOCUMENTS**

- a. The specifications are intended to describe all material and labor necessary to determine the intention of the subject project and assumes the inclusion of all miscellaneous and incidental items necessary to complete the work.
- b. These specifications are divided into titled divisions and sections under the divisions.

The divisions and sections do not, however, operate to make the University Representative an arbiter to establish the limits to the contract between the Contractor and his Subcontractors.

- c. In the event of a conflict within the contract documents...the more stringent requirements will apply.

**5. USE OF PREMISES. SPECIAL WORKING CONDITIONS**

- a. The Contractor shall confine the construction to the following time period:

Monday through Friday, 7:30 a.m. to 4:30 p.m.

- b. Parking for Contractor's employees will be limited to an area designated by the University. The Contractor shall be provided identification stickers for employees' cars.
- c. The Contractor shall coordinate all work to coincide with the General Contractor's schedule for work areas.
- d. The Contractor is responsible for coordinating staging area with the General Contractor.
- e. The contract shall be responsible for keeping the premises clean and shall pick up rubbish and debris daily.

**6. MAINTENANCE OF TRAFFIC WAYS**

- a. The Contractor shall be granted the use of paved roads and parking areas but shall not infringe in use of same, or access thereto, for passage over the Owner's property. Traffic ways shall not be blocked by standing trucks, parked cars, material storage, construction operations, or in any other manner.
- b. Public roads, and the existing paved roads and parking areas on Owner's property, shall be kept free from scrap and other material due to construction operations, and any damage to their surface caused by the Contractor shall be repaired by him at his own expense to the satisfaction of the University Representative.

**7. PLANS AND SPECIFICATIONS AT THE SITE**

The contractor shall maintain at the site of the work, one copy of all specifications, addenda, approved shop drawings, change orders, and other modifications, schedules and instructions, in good order and marked to record all changes made during construction. These shall be available at all times to the agency representative.

## **8. SHOP DRAWINGS**

- a. Shop drawings shall be submitted in sufficient number of copies and manner to facilitate the work and shall show all work in detail.
- b. The Contractor shall review the shop drawings, stamped with his approval and submit them with reasonable promptness and in orderly sequence so as to cause no delay in his work or in the work of any sub-contractor. Shop drawings shall be properly identified as specified, for item, material, workmanship (when required) and project. At the submission, the Contractor shall inform the Architect, in writing, of any deviation in the shop drawing from the requirements of the Contract Documents.

## **9. SAMPLES**

- a. Submit samples of all items where specifically required. Furnish information and data describing items or materials offered as being equal to those specified, as may be necessary to establish such quality. The Owner's decision will be final.
- b. Mark samples clearly to show:
  - (1) Name of trade, type quality or grade and any further designation necessary to identify the items or material
  - (2) Manufacturer's or producer's name
  - (3) Name of Contractor or Subcontractor, if any
  - (4) Name and number of project
- c. Submit samples of such size and/or number sufficient to show quality, type, range of color, finish and texture.
- d. Materials furnished shall be equal to approved samples.

## **10. CONSTRUCTION EQUIPMENT**

- a. The contractor shall furnish and maintain, at his own cost and risk, all tools, apparatus and appliances necessary to insure speed, convenience and safety in the execution of his contract. All such items shall comply with OSHA REGULATIONS AND ALL APPLICABLE CODES, STATUTES, RULES AND REGULATIONS.

- b. All staging, supports, bracing and similar work, exterior and interior, shall be furnished erected and removed by this Contractor and maintained in safe condition by him without charge to and for the use of all trades as needed by them for proper execution of their work, except where specified to the contrary in the contract documents.
- c. All hoisting equipment and machinery required for the property and expeditious prosecution and progress of the work shall be furnished, installed, operated and maintained in safe condition by this Contractor for the use of all subcontractors' materials and/or equipment delivered to the designated hoisting area except that which is specifically required in each appropriately related section of the specifications. All costs for hoisting operating services shall be borne by this Contractor, unless specifically excepted elsewhere.

#### **11. RECORD DRAWINGS DURING CONSTRUCTION**

- a. The Contractor is to maintain at the project site two (2) sets of black (or blue) and white prints of the Contract Drawings on which he must record changes as they occur on the job.
- b. At the conclusion of construction, he is to turn one (1)-corrected set over to the Agency.

#### **12. PROTECTION**

- a. Fire protection: The contractor shall, during the progress of construction, assume all responsibilities for loss or damage by fire to the work included in his contract until completion of the contract. All fire used within structure for working purposes shall be extinguished when not in use. No flammable material shall be stored in the structure in excess of the amounts allowed by the authorities. No gasoline shall be stored in the structure outside of working hours.
- b. Protection from theft or vandalism: The Contractor shall be solely responsible for damage, loss or liability due to theft or vandalism.
- c. All building equipment, furnishings, grounds, planting, etc. shall be protected from damage of every description and any such damage thereto shall be repaired or otherwise made good at no expense to the University.
- d. Supply and install any and all protective coverings and barricades necessary to prevent damage or personal injury. The Contractor shall be held responsible for, and must make good, at his own expense, any water damage or any other type of damage due to improper protective coverings.

- e. Protect at all times the public and building personnel from injury due to construction activities

### **13. TEMPORARY OFFICES**

Temporary offices will not be provided by the University for this project.

### **14. TEMPORARY TELEPHONES**

Public telephones are not available on the Campus grounds.

### **15. TEMPORARY TOILET SERVICE**

The University will permit the Contractor to use a specified existing toilet facility within the building. It shall be required of the Contractor to maintain and keep the toilet reasonably clean, or the privilege may be terminated in which case he must provide portable, chemical toilet facilities.

### **16. TEMPORARY LIGHT AND POWER**

Power for construction purposes will be provided by the University. The Contractor will provide all necessary equipment, electrical cables, etc. that he may need in the use of the electric power.

### **17. DELIVERY, STORAGE AND HANDLING**

All materials and equipment shall be so delivered, stored and handled as to prevent intrusion of foreign matter and any damage by weather or breakage. Packaged materials shall be delivered and stored in original packages. Packages, materials and equipment showing evidence of damage shall be rejected and replaced at no additional cost to owner. The contractor will make his own accommodations for deliveries and not use WCSU Receiving Department for deliveries.

### **18. CODE AND SPECIFICATIONS**

All references to standard specifications and codes made throughout the specifications refer to the latest edition in effect at the dates of proposal. Such references include current addenda and errata, if any, and shall be considered a part of these specifications as much as if the pertinent portion of those standard specifications were printed herein in their entirety.

### **19. ADDENDA ISSUED DURING BIDDING PERIOD**

When returning a bid, the Contractor will note receipt of any addenda received

**20. DIMENSIONS AND MEASUREMENTS**

The Contractor and each subcontractor shall **verify** all dimensions before ordering any material or doing any work, and shall be responsible for connection of same. Any difference that may be found shall be submitted for clarification before submitting a bid and for construction.

**21. FINAL CLEANING**

The Contractor, preparatory to final inspection, shall provide final cleaning of all work in readiness for use.

**22. SPECIAL REQUIREMENT, GUARANTEES AND WARRANTIES**

The contractor shall guarantee all materials and workmanship for a period of eighteen (18) months, from the date of substantial completion. In addition, the Contractor shall provide special guarantees where indicated in the contract documents or where a manufacturer's guarantee exceeds eighteen (18) months.

**23. FORMS, BONDS, GUARANTEES AND WARRANTIES**

The Contractor shall furnish to the Agency Representative the foregoing documents in the following manner:

a. Addressed to:

Peter J. Visentin, AIA  
Director, Facilities Planning & Engineering  
Western Connecticut State University  
181 White Street  
Danbury, CT 06810

b. Project Title and Number:

c. I (We) hereby guarantee (warranty) the \_\_\_\_\_ work on the referenced project for a period of \_\_\_\_\_ years from \_\_\_\_\_ against failure of workmanship and materials, etc., in accordance with the requirements of Division \_\_\_\_\_, Section \_\_\_\_\_, Page \_\_\_\_\_, Paragraph \_\_\_\_\_, of the contract specifications.

Signed \_\_\_\_\_

Contractor  
(By Authorized Agent)

- d. All required bonds shall be by the respective Surety Companies, made out to Western Connecticut State University.
- e. All guarantees supplied by Subcontractors, suppliers of manufacturers shall be countersigned by Contractor.

**24. OPENINGS, CHASES, INSERTS, ETC.**

- a. These may not be shown on the working drawings, and it shall be the responsibility of the Contractor to examine the electrical, heating, plumbing and ventilating drawings and consult with the contractors for same, and to provide all such chases, channels, openings definitely located by such trades previous to the construction by him of the work involved.
- b. The Contractor, his subcontractors and others shall furnish properly located and install sleeves, inserts, hangers, etc., required for the installation of their work.
- c. After the installation and completion of the work for which openings, channels, chases, etc., have been provided, the Contractor shall properly close and finish all openings, channels, chases, etc. as required to complete the work.

**25. OCCUPANCY PRIOR TO FINAL INSPECTION**

- a. Upon completion, and before final inspection, together with the status of completion and terms of occupancy will be issued by the University.
- b. The University will obtain from the General Contractor written approval of such occupancy and will determine whether such occupancy or use is possible and, if so, will make arrangements for holding a job inspection with the Contractor.
- c. A punch list based on this inspection, together with the status of completion and terms of occupancy will be issued by the University.

The letter granting such occupancy will state the terms and conditions of occupancy and that fire insurance coverage has been requested, the effective date of which will indicate to the Contractor that he may cancel the fire insurance coverage normally carried on the building by him.

**26. OPERATING AND MAINTENANCE INSTRUCTIONS**

- a. Upon completion, and before final acceptance, the Contractor in coordination with the Architect, shall provide information concerning all mechanical equipment, alarm and safety equipment and shall furnish three (3) separately bound sets of operating and maintenance instructions, properly labeled for said equipment. These shall be typewritten or mimeographed, 8-1/2 x 11 inch sheets describing the equipment and detailing the sequencing and settings. Complete data on lubrication, service repair, and parts listed shall be included in these instructions. Manufacturers' bulletins or catalogs will be acceptable for the above purpose, but shall be amplified as required to provide full instructions. Installed model, size, rating, operating and other applicable information shall be clearly identified.

Manufacturers' specific operating and servicing manuals are acceptable, provided they fully cover the requirements and any additional data is appended. Complete wiring and control diagrams are required to explain the operating; services and repair are to be included, and their location in the building given. Valve identification shall include the assigned tab numbers in the valve directory. All copies shall be submitted by the University.

- b. In addition, the Contractor shall furnish and install enclosed in clear plastic with eyelet for fastening, one (1) set of operating instructions, with necessary diagrams, which shall be hung adjacent to the item of equipment or at the operating stations to which the instructions apply.
- c. Upon completion of all work and tests, the Contractor shall furnish the necessary skilled labor to fully instruct the University personnel in the location, operation and maintenance of the equipment.

**END OF SECTION**

PART 1 - GENERAL

1.01 GENERAL PROVISIONS

- A. Attention is directed to the CONTRACT AND GENERAL CONDITIONS and all Sections within DIVISION 01 - GENERAL REQUIREMENTS which are hereby made a part of this Section of the Specifications.

1.02 DESCRIPTION OF WORK

- A. Work Included: Provide labor, materials and equipment necessary to complete the work of this Section, including but not limited to the following:

1. All work of Section 27 05 29 - Hangers and Supports for Communications Systems
2. All work of Section 27 05 53 - Identification for Communications Systems
3. All work of Section 27 08 00 - Commissioning of Communications
4. All work of Section 27 11 19 - Communications Termination Blocks and Patch Panels
5. All work of Section 27 11 23 - Communications Cable Management and Ladder Rack
6. All work of Section 27 15 13 - Communication Copper Horizontal Cabling
7. All work of Section 27 15 43 - Communications Faceplates and Connectors

- B. Alternates: Not Applicable.

- C. Items To Be Installed Only: Not Applicable.

- D. Items To Be Furnished Only: Not Applicable.

- E. Related Work: The following items are not included in this Section and will be performed under the designated Sections:

1. Not Applicable

1.03 PROJECT DESCRIPTION

- A. This project consists of upgrades to the existing residence apartments/rooms and Wireless Access Points structured cabling system at Western Connecticut State University's Litchfield Residence Hall, located in Danbury, CT. Existing cable raceways in the apartments shall be demolished and new cable raceways shall be installed to accommodate Category 6 UTP cable. The project includes the addition of outlets to two (2) existing Telecom Rooms on the 2<sup>nd</sup> Floor of Litchfield Hall. Existing equipment racks will be used for additional patch panels to support the additional outlets. See drawings for the exact scope of work.

1.04 SPECIAL CONDITIONS

- A. The general conditions for contracts of construction, referred to in the contract documents as the General Conditions, together with the following articles of the Communications Structured Cabling Specifications, which amend, modify and supplement various articles and provisions of the General Conditions, are made part of the Contract and shall apply to all work under the Contract.
- B. The Contractor represents that he/she is familiar with, and has expertise in the Work of this nature and scope. The Contractor further agrees that he/she shall provide all Work as may be required to make a complete job of that which may not be fully defined in the Contract documents.
- C. These specifications are material, equipment, and performance specifications. Actual installation requirements shall be as indicated on the drawings. Installation details indicated on the drawings shall govern if they differ from the specifications. Contractor is obligated to identify such differences at the time of bid submission.
- D. Contractor shall comply with all applicable governmental regulations and with all Federal, State, City, and other applicable codes and ordinances. If the contractor performs any work which is contrary to such regulations, codes, and ordinances, contractor shall make all changes to comply therewith and bear all costs arising there from.
- E. It is the intent of this Specification that all items under these Sections be engineered, assembled, installed and maintained by, and under the full responsibility of a single Contractor, whether these processes are actually performed by the Contractor or not. Deviations from this intent are to be fully described in the proposal, with reasons for the same, and the coordination methods required facilitating the least effect of the deviation on the project's implementation.

1.05 WORK INCLUDED

- A. The Owner seeks to identify a qualified telecommunications cabling contractor capable of performing the scope of work as identified in the Contract Documents.
- B. It is the intent of these Specifications to create an ANSI/TIA-568-C compliant cabling system to support high-speed data applications up to 10 Gbps including IEEE standards based on Fast Ethernet, Gigabit Ethernet, and 10 Gigabit Ethernet. System acceptance shall be judged on its ability to perform as such, the successful adherence to the installation instructions of this Specification, and compliance with parts and workmanship warranties.
- C. The work covered by this specification includes the installation of a complete cabling system, including all labor necessary to perform and complete such installation, all materials and equipment incorporated or to be incorporated in such installation, and all services, supervision, consumable items, fees, licenses, facilities, tools, and equipment necessary or used to perform and complete such installation.

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- D. The Work Included is defined by the following and further defined in the drawings and Sections of Division 270000.
1. Provide project management and oversight for the installation of a complete structured cabling system.
  2. Prepare and submit component documentation shop drawings, outlet labeling drawings, cable pull/termination schedules, cable test results and as-built drawings as described within this Specification and per the General Conditions.
  3. Preparation of shop drawings, record or as-built drawings, manufacturer cut sheets, and other documentation described herein.

1.06 REFERENCES

A. Abbreviations and Acronyms

1. A/E: Architect / Engineer (designer)
2. ANSI: American National Standards Institute
3. AHJ: Authority Having Jurisdiction
4. APC: Angled Physical Connector
5. BDF: Building Distribution Frame
6. BICSI: Building Industry Consulting Service International
7. CMP: Communications Plenum cable
8. CMR: Communications Riser cable
9. DAS: Distributed Antenna System
10. EIA: Electronics Industry Alliance
11. ELFEXT: Equal Level far End Cross Talk
12. ER: Equipment Room
13. F/UTP: Foil Screened Unshielded Twisted Pair
14. FOTP: Fiber Optic Test Procedure
15. GHz: Gigahertz
16. IDC: Insulation Displacement Conductor
17. IDF: Intermediate Distribution Frame

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18. IT: Information Technology
19. ISP: Inside Plant
20. LC: A type of small form factor optical fiber connector
21. LOMMF: Laser Optimized Multimode Fiber
22. MDF: Main Distribution Frame
23. MHz: Megahertz
24. MMF: Multimode Fiber
25. MPO: Multi-fiber Push On connector
26. MPOE: Minimum Point of Entry
27. MTER Main Telecommunications Equipment Room
28. NEXT: Near End Cross Talk
29. OFNP: Optical Fiber nonconductive plenum cable
30. OFNR: Optical Fiber nonconductive riser cable
31. OSP: Outside Plant
32. OTDR: Optical Time Domain Reflectometer
33. PoE: Power-over-Ethernet
34. PSELFEXT: Power Sum Equal Level far End Cross Talk
35. PSNEXT: Power Sum Near End Cross Talk
36. RCDD: Registered Communications Distribution Designer
37. RMU: Rack Mount Unit
38. RoHS: Restriction of Hazardous Substances
39. ScTP: Screened Twisted Pair
40. STP: Shielded Twisted Pair
41. SMF: Singlemode Fiber
42. TCIM: Telecommunication Cabling Installation Manual
43. TDMM: Telecommunications Distribution Methods Manual
44. TDR: Time Domain Reflectometer

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- 45. TGB: Telecommunications Grounding Busbar
  - 46. TIA: Telecommunications Industry Association
  - 47. TMGB: Telecommunications Main Grounding Busbar
  - 48. TR: Telecommunications Room
  - 49. TSER: Telecommunications Service Entry Room
  - 50. UL: Underwriters Laboratory
  - 51. UTP: Unshielded Twisted Pair
  - 52. WAP: Wireless Access Point
- B. "PROVIDE" or "FURNISH" means to supply, purchase, transport, place, erect, connect, label, test and turn over to Owner, complete and ready for regular operation, all materials, labor, equipment, testing apparatus, controls, tests, accessories and all other items customarily required for a telecommunications cabling system.
  - C. "SUPPLY" means to purchase, procure, acquire, and deliver complete with related accessories.
  - D. "INSTALL" means to move from property line, set in place, join, unite, fasten, link, attach, set up or otherwise connect together before testing and turning over to Owner of equipment and/or components. It means the installation is to be complete and ready for regular operation, except as otherwise noted.
  - E. "WIRING" or "CABLING" includes furnishing, unless otherwise noted, of all fittings, hangers, supports, sleeves, etc.
  - F. "CONDUIT" and CABLE TRAY" includes furnishing, unless otherwise noted, of all fittings, hangers, supports, sleeves, etc.
  - G. AS DIRECTED" means as instructed by the IT Project Manager or his representative.
  - H. "CONCEALED" means embedded in masonry or other construction, installed behind wall furring or within double partitions, or installed within hung ceilings.
  - I. "EXPOSED" means not installed underground or "CONCEALED" as defined above.
  - J. "PERMANENT LINK" means the end-to-end test configuration for a link excluding test cords and patch cords, but including the mated connection with the link.
- 1.07 CODES, REGULATIONS, AND STANDARDS
- A. All equipment shall be equal to or exceed the minimum requirements of OSHA, NEMA, IEEE, ASME, ANSI, NEC and Underwriters Laboratories.
  - B. The installation shall comply fully with all applicable local, county and state laws and ordinances, regulations and codes.

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- C. Local electrical and building codes in New York may be more stringent than national codes, recommendations or practice. Follow the most restrictive code or recommendations.
- D. All products, services and materials provided and performed under the scope of this specification shall conform to the following codes and standards. Refer to the most recent version, update or addenda.
1. ANSI X3T9.5 FDDI
  2. ANSI X3T9.5 CDDI
  3. Building Industry Consulting Service International (BICSI) Telecommunications Distribution Methods Manual - latest edition
  4. Building Industry Consulting Service International (BICSI) Information Transport Systems Installation Manual (ITSIM) – latest edition
  5. ANSI/TIA/EIA-568-C.1, Commercial Building Telecommunications Cabling Standard
  6. ANSI/TIA/EIA-568-C.3, Optical Fiber Cabling Components Standard
  7. ANSI/TIA/EIA-569-D, Commercial Building Standards for Telecommunications Pathways and Spaces
  8. ANSI/TIA-606-B, Administration Standard for Commercial Telecommunications Infrastructure
  9. ANSI/TIA-607-C, Commercial Building Grounding (Earthing) and Bonding Requirements for Telecommunications
  10. EIA RS-232 Serial Communications Electrical Interface
  11. EIA RS-310-C Racks, Panels and Associated Equipment
  12. FCC Part 15
  13. FCC Part 68
  14. IEEE 802.12, 100Base-TX Ethernet
  15. IEEE 802.3ab, 1000Base-T Ethernet Specification
  16. IEEE 802.11, Wireless Ethernet Specifications, including 802.11a, 802.11b, 802.11g, 802.11n and 802.11ac.
  17. NEC Article 770, Optical Fiber Cables
  18. NEC Article 800, Communications Circuits
  19. NFPA 70, National Electrical Code

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20. NFPA 75, Protection of Electronic Computer / Data Processing Equipment
21. NFPA 101, Life Safety Code.
22. Underwriters Laboratories Inc. (UL) – Fire Resistance Directory
23. ASTM E 84, Surface Burning Characteristics of Building Materials.
24. ASTM E 119, Fire Tests of Building Construction and Materials.
25. ASTM E 814, Fire Tests of Penetration Firestop Systems.
26. ANSI/UL263, Fire Tests of Building Construction and Materials.
27. ANSI/UL723, Surface Burning Characteristics of Building Materials.
28. ANSI/UL1479, Fire Tests of Through Penetration Firestops.

1.08 QUALITY ASSURANCE

- A. All materials furnished shall be new, unused, clean and free from damage, defects or corrosion.
- B. Equipment and materials of the same type shall be a product of the same manufacturer throughout unless specifically exempted in advance. A specific example is all products comprising the Permanent Link (station cable, patch panels, jacks, faceplates, etc.)
- C. Component manufacturer shall be ISO 9001:2008 and offer products that are RoHS compliant.

1.09 SUBMITTALS

- A. Certificates:
  1. Submit management and installation team reference documentation verifying that:
    - a. The project manager is a RCDD in good standing with BICSI and is qualified to manage the scope of work described in the contract documents and has five (5) years of experience managing similar projects in size and scope. The documentation shall include the RCDD registration number.
    - b. The field supervisor is a BICSI trained technician that is qualified to perform and oversee the work described in the contract documents.
    - c. The Contractor is a certified contractor/installer for the specified and/or approved equivalent products listed in these Division 27 specifications.
- B. Qualification Statements

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1. The contractor shall submit documentation that within the past 12 months, a minimum of 75% of all installation personnel have been trained or certified by the manufacturer of the products they are installing.

C. Shop Drawings

1. Refer to requirements listed in Division 01.

1.10 COORDINATION OF WORK

1. Refer to requirements listed in Division 01.

1.11 PROJECT CLOSEOUT

- A. Subsequent to the installation and prior to acceptance of the work, the contractor shall prepare and issue record (as-built) drawings, in AutoCAD format, that reflect the lengths of cables installed, the actual manner and conditions of installation, including all deletions from, additions to or departures from the contract documents. These documents are to include the information outlet station numbers and cable routing where it varies from the original plan.
- B. Provide revised cable termination schedules for all cables installed under the Work. Schedules shall be in printed form and on CD in Microsoft Excel format.
- C. Provide two (2) sets of Operation and Maintenance Manuals including wiring diagrams, parts list, shop drawings and manufacturers' information on all equipment and cables provided under this Work. Provide manuals in a high quality, 3-ring binder, completely indexed. Provide manuals within fifteen days of systems acceptance.

1.12 MANUFACTURER'S EXTENDED WARRANTIES

- A. All manufacturer extended product warranties shall be afforded to The Owner. A copy of certification by the manufacturer for all products listed in this specification is to be provided.
- B. Contractor to provide the Limited Lifetime warranty for the structured cabling system chosen for this project.
- C. Prior to commencement of the work, the successful bidder shall contact an authorized manufacturer's representative to inform them that this job is being registered under the warranty program.
- D. Upon completion of the work, the contractor shall coordinate with the manufacturer the issuance of a full warranty on the entire copper and fiber optic cable plant including the horizontal cabling for both parts and labor. The cabling contractor at his sole expense will correct any deficiencies determined by the manufacturer

PART 2 - PRODUCTS

2.01 REFER TO THE SPECIFIC SECTIONS OF THE SPECIFICATIONS FOR EQUIPMENT REQUIREMENTS.

PART 3 - EXECUTION

3.01 STAFFING

- A. Craft personnel shall be certified personnel qualified to perform the work and be knowledgeable of the following activities.
  - 1. Color coding of standard American telephone/ data telecommunications cables.
  - 2. Bonding and grounding of shields.
  - 3. Testing conductors for transmission impairments.
  - 4. Testing conductor insulation.
  - 5. Installation and termination of optical fiber cabling.
  - 6. Testing and verification of optical fiber transmission characteristics with a power meter.
  - 7. Telephone and Data Industry Cable Installation Standards and Manufacturer's Instructions will be used for in-process quality control and final acceptance of the work installation.
  - 8. Cable tray and ladder rack installation.
- B. Craft personnel will be required to provide and use the proper tools and test equipment in the performance of each activity. The tools must be in good working order, and the test equipment must have current calibration certificates, as applicable. The Owner reserves the right to review the tool and test equipment lists and maintenance procedures of the contractor.
- C. Use of Site – Refer to the Division 01 Requirements.
- D. Follow manufacturer's instructions for installing, connecting, and adjusting all telecommunications riser and horizontal cabling and associated supporting, termination and splicing equipment, conduits, poke throughs, and ladder rack. Provide a copy of such instructions at the equipment during any work on the equipment.
- E. Keep all items protected before and after installation. Provide protection for exposed cables roughed onto the floor prior to their installation into the furniture systems. Clean up and remove all debris.

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- F. If products and materials are specified herein for a specific item or system, use those products or materials. If products and materials are not listed, use first-class products and materials, subject to acceptance of shop drawings.
- G. Examine and compare the telecommunications cabling drawings and specifications with the drawings and specifications of other trades; report any discrepancies between them to the IT Project Manager; and obtain from him written instructions for changes necessary in the work.
- H. The locations of structural and architectural features, existing sleeves, floor slots, termination and cross connect fields, panels, racks and other equipment indicated on the drawings are approximate. The contractor shall verify the existence, locations, and suitability of all such items, and shall present, with bid response, required modifications to contract documents necessary to complete this work.

3.02 SPECIAL CONDITIONS

- A. Furnish, install, terminate and test all horizontal, riser and outlet cabling for all floors shown in the attached and associated drawings and described below.
  - 1. The contractor shall route all copper and fiber cabling, unless otherwise identified, via hung ceilings, cable tray, ladder rack, conduits, raised floors, poke-throughs, and furniture systems unless otherwise noted. Contractor shall install all overhead station cable in such a manner that the selected route does not in any way compromise ceiling integrity. Cables that are routed in open ceiling areas must be neatly tie wrapped and suspended with the appropriate hangers and shall not be allowed to rest on ducts, pipes and conduits. At no time will cable be supported from hung ceilings or ceiling support wires. All overhead cabling must be neatly bundled and secured as close as possible to the overhead slab to avoid conflict with or EMI from flexible electrical conduits, motors, etc.
  - 2. Core drilling and the installation of aftersets, grommeted access slots, sleeves, conduits, fire rated poke-throughs, and raceways required to route copper and fiber optic cabling will be furnished and installed by parties as indicated by contract documents. Where pathways furnished by others are not sufficient for the routing of cabling, this condition shall be brought to the attention of the Construction Manager and the IT Project Manager, in writing, by this contractor.
  - 3. As indicated, cabling shall run to workstation and other outlets through cavities in the drywall and openings in sheet metal or wooden studs within the drywall construction. The sheet metal studs will not be gasketed for this purpose, it shall be the contractor's responsibility to exercise extreme care in snaking cable through these areas to avoid damage to the cable jacketing.
  - 4. Information Outlet faceplates for all boxes will be furnished and installed by this contractor.

5. All cabling shall be installed at least: 12" from high voltage lighting and fluorescent fixtures unless within a metal enclosure 72" from transformers and motors.

### 3.03 INSTALLATION

- A. Most optical fiber and copper cables will enter the Telecom Rooms through the conduits and overhead cable tray based on the cable routing requirements reflected on drawings
- B. Contractor shall take all necessary precautions to assure that the maximum tensile load and minimum bend radius of all cables (fiber and copper) are not exceeded. When terminating UTP cable, the contractor must maintain pair twists up to the termination point and the cable sheath shall not be removed more than 0.5" from the termination point. Velcro tie wraps are to be hand tightened on cables to prevent crimping cable sheath. Plastic tie wraps are not to be used on lateral cables. The contractor is responsible for protecting all connectorized cables from damage by other contractors at the information outlet before and after installation of the outlet faceplates
- C. Termination Hardware.
  1. All horizontal station cabling will be terminated on 8 pin modular patch panels. The fiber optic riser and tie cabling shall be terminated on fiber distribution coupler panels with LC connectors. All copper riser and tie cables shall be terminated on rack mounted patch panels unless otherwise noted.
  2. All termination hardware shall be grounded and bonded according to applicable codes and TIA standards.
- D. Horizontal Subsystem Cabling: All horizontal cables shall be installed as uninterrupted conductor sections between the TR and station outlets
  1. Installation of outlet jacks shall be coordinated by the contractor with the work of other trades, all working together with the Construction Manager.
  2. Standard information outlets shall be housed in a single gang box, flush mount poke through, surface mount raceway, or furniture system raceway as indicated on the drawings. All horizontal cables shall be terminated on 8-pin modular jacks.
  3. All installed connectors shall be protected and insulated during and following the installation. Protective caps or dust covers shipped with connectors shall be left in place or replaced by the contractor if found to be dislodged or damaged.

3.04 REPLACEMENT

- A. Any fiber strand, connector, block, or module installed by the contractor, which fails to meet the loss budget or tests below the manufacturer's standards, shall be replaced at no additional cost to the Owner. The replacement cable, connector, or part shall be tested after repairs have been made to verify compliance. Only equipment that meets the installation requirements stated herein shall meet The Owner's acceptance requirements.

3.05 SOURCE MANUFACTURING AND QUALITY CONTROL

- A. Cables that are supplied by the contractor, and test outside of the factory test data by a margin of 10 percent on loss, may, at The Owner's option, be deemed non-usable and returned to the manufacturer for replacement.

3.06 POST IMPLEMENTATION TESTING

- A. Following the physical installation of the cabling, the contractor will conduct pre-checkout tests as described below, "Physical Inspection", prior to the formal acceptance tests with The Owner.

3.07 PHYSICAL INSPECTION

- A. Prior to conducting any transmission testing, the following visual inspections will be performed:
  1. Verify that all cable has been installed to full compliance with the proposal specifications.
  2. Check for physical damage to the optical fiber distribution panels and termination hardware.
  3. Check that all cabling is properly jacketed, installation properly labeled at both ends of the cable, and termination hardware is completed in all TRs and the MDF.
  4. Verify that all cable bends are within the manufacturer's specified bend radius
  5. Verify that all cabinets and racks (which require grounding) are properly grounded and comply with the National and Local Electrical Codes for grounding
  6. Verify that the cables are properly approved and structurally supported for termination
  7. Verify that the requirements of all authorities having jurisdiction have been satisfied.

3.08 PENETRATIONS THROUGH FIRE SEPARATIONS

- A. Fire retardant sealer and system shall meet ASTM E-84, ASTM E-814, and UL-1479.

END OF SECTION

PART 1 - GENERAL

1.01 GENERAL PROVISIONS

- A. Attention is directed to the CONTRACT AND GENERAL CONDITIONS and all Sections within DIVISION 01 - GENERAL REQUIREMENTS which are hereby made a part of this Section of the Specifications.

1.02 DESCRIPTION OF WORK

- A. Work Included: Provide labor, materials and equipment necessary to complete the work of this Section, including but not limited to the following:
  - 1. Non-continuous cable supports.
- B. Alternates: Not Applicable.
- C. Items To Be Installed Only: Not Applicable.
- D. Items To Be Furnished Only: Not Applicable.
- E. Related Work: The following items are not included in this Section and will be performed under the designated Sections:
  - 1. Section 27 11 23 – Communications Cable Management and Ladder Rack
  - 2. Section 27 15 13 – Communications Copper Horizontal Cabling

1.03 SUMMARY

- A. Provides specifications for non-continuous cable support components utilized to provide pathways support to telecommunications cables traveling outside cable trays, conduits, or other continuous cable supports.

1.04 RELATED DOCUMENTS

- A. Architectural, mechanical, electrical, and all technology drawings.

1.05 REFERENCES

- A. Codes and Regulations: (Note: Reference Division 01 for specific code versions governing the work in addition to the information noted below).
  - 1. Refer to Section 27 05 00 – Common Work Results for Communications

PART 2 - PRODUCTS

2.01 NON-CONTINUOUS CABLE SUPPORTS

- A. Manufacturer List:

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COMMUNICATIONS SYSTEMS

1. Erico – Caddy CableCat support system
  2. Cooper B-Line – Spring steel fasteners
  3. Panduit – J-Mod cable support system
  4. Or approved equivalent
- B. Product Options:
1. The indicated manufacturers shall be the basis of the design and each component selected shall address the particular infrastructure requirements.
  2. Select support system components capable of supporting the telecommunications cable quantities required for each location. Options are as follows:
    - a. Support slings/cable straps – CADDY "Cablecat" Part No. CAT425 or approved equivalent
    - b. Four inch (0'4") J-hook supports – CADDY "Cablecat" widebase cable support J-hooks, Part No. Cat64 or approved equivalent.
- C. Description:
1. Non-continuous cable supports shall be available in multiple sizes, styles and materials. Rigid supports shall be equipped with flared edges and pre-configured bend radius controls.
  2. Provide drop wire supports and threaded rod assemblies in areas where structural mounting surfaces are non-functional or inaccessible.
  3. Sling assemblies/cable straps shall provide a bearing surface of sufficient width to comply with required bend radii of high-performance UTP and optical fiber cables. Support slings shall have a static load limit of 100 lbs.
  4. Non-continuous cable supports sized 1 5/16" and larger shall have a cable retainer strap to provide containment of cables within the hanger. The cable retainer strap shall be removable and reusable.
  5. Select approved non-continuous cable supports suitable for specific installation environments and/or air handling (plenum) spaces.

PART 3 - EXECUTION

3.01 EXAMINATION

- A. Check actual site conditions prior to start of any work. Ensure all preceding trade work associated with the telecommunications system is accurate and complete before proceeding with installation or use of products specified in this section.

3.02 NON-CONTINUOUS CABLE SUPPORT INSTALLATION

A. Process:

1. Follow manufacturer's instructions and recommended industry standards and guidelines.
2. The installed non-continuous support system must be an independent support structure for the voice/data communication system.
3. Draping cables over other structures in the ceiling is unacceptable. Water pipes, ceiling grid, sprinkler system, electrical supports, air ducts or any other in-ceiling structure may not be used for cable support.
4. Contractor installed supports shall be used to supplement the main cable support system when any cabling leaves the main support system or is unsupported for more than three and one half feet (3'-6").
5. Supports shall be installed at a maximum distance of 5'-0" apart.
6. Non-continuous supports shall be installed with ceiling wire or threaded rod secured to the slab above to support the telecommunications cable infrastructure parallel to the slab throughout the cable plant, unless site conditions dictate a non-parallel installation.
7. Cable must be routed to follow existing corridors and parallel or 90 degree angles from all walls and the cable tray whenever possible.

3.03 RE-INSTALLATION

- A. No additional burden to the owner regarding costs, network down-time, and end user interruption shall result from the re-installation of specified components. Scheduling for re-installation work shall be coordinated, in writing, with the owner prior to beginning any re-installation work.

3.04 CLOSEOUT ACTIVITIES

- A. Contractor shall provide documentation of all telecommunications system components under this section utilized throughout the site for review and reference by the Owner and A/E team.

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COMMUNICATIONS SYSTEMS

- B. Contractor to submit all as-built drawings and any test documentation required prior to acceptance by the Owner.

END OF SECTION

PART 1 - GENERAL

1.01 GENERAL PROVISIONS

- A. Attention is directed to the CONTRACT AND GENERAL CONDITIONS and all Sections within DIVISION 01 - GENERAL REQUIREMENTS which are hereby made a part of this Section of the Specifications.

1.02 DESCRIPTION OF WORK

- A. Work Included: Provide labor, materials and equipment necessary to complete the work of this Section, including but not limited to the following:
  - 1. Labeling and identification products
- B. Alternates: Not Applicable.
- C. Items To Be Installed Only: Not Applicable.
- D. Items To Be Furnished Only: Not Applicable.
- E. Related Work: The following items are not included in this Section and will be performed under the designated Sections:
  - 1. Section 27 11 19 – Communications Termination Blocks and Patch Panels
  - 2. Section 27 15 13 – Communications Copper Horizontal Cabling

1.03 SUMMARY

- A. Provides specifications information for identification of the various components of the telecommunications infrastructure and pathway system.

1.04 RELATED DOCUMENTS

- A. Architectural, mechanical, electrical, and all technology drawings.

1.05 REFERENCES

- A. Codes and Regulations: (Note: Reference Division 01 for specific code versions governing the work in addition to the information noted below).
  - 1. Refer to Section 27 05 00 – Common Work Results for Communications

PART 2 - PRODUCTS

2.01 LABELING AND IDENTIFICATION PRODUCTS

- A. Manufacturer List:
  - 1. Brady USA Inc.

2. Panduit Corporation
3. Rhino
4. Ortronics
5. Or approved equivalent

B. Product Options:

1. The indicated manufacturers shall be the basis of the design and each component selected shall address the particular requirements for each situation.

C. Description:

1. Machine-generated, printed self-adhesive, smudge resistant labels for cables, faceplates, patch panels, and termination blocks. Labels shall be appropriately sized for cable diameter. Labels shall be appropriately colored for faceplate color contrast
2. The intention of the labeling scheme is to be ANSI/TIA-606-B compliant.
3. It is the responsibility of the contractor to acquire, understand, and utilize the owner's labeling scheme for all components of the communications system.
4. Submit sample labels for approval.
5. Labels shall have industrial adhesives that resist dirt and oil.
6. Shall have a split backing for easy removal
7. Design Make
  - a. Flexible Nylon
    - 1) For curved surfaces (wire and cable) and rough surfaces for indoor applications flexible nylon memory resistant material shall be used.
  - b. Permanent Polyester Labels
    - 1) For flat surfaces permanent polyester shall be used.
  - c. Vinyl
    - 1) For outdoor applications in direct sunlight and where color coding is required vinyl shall be used.
  - d. Heat Shrink Tube
    - 1) Shall be polyolefin tube with a 3:1 heat-shrink ratio

- e. Non – Adhesive labels
  - 1) Shall be rigid and durable polypropylene material.
- 8. Labeling shall meet the visibility and durability requirements of ANSI/TIA – 606-B standard.
- 9. Labels shall be pre-printed or laser-printed. Hand written labels are not acceptable.
- 10. Labels shall have white printing area and black print. If cable jacket is white, provide cable label with printing area that is any color other than white, preferably orange or yellow – so that labels are easily distinguishable.

### PART 3 - EXECUTION

#### 3.01 EXAMINATION

- A. Check actual site conditions prior to start of any work. Ensure all preceding trade work associated with the telecommunications system is accurate and complete before proceeding with installation or use of products specified in this section.

#### 3.02 LABELING

- A. Process:
  - 1. The Owner-approved labeling scheme is intended to comply with the ANSI/TIA-606-B standard for labeling and administration of a cable plant. It is the responsibility of the contractor to acquire, understand, and utilize the owner's labeling scheme for all component of the voice data communications system including, but not limited to:
    - a. Station cables (both ends)
    - b. Workstation outlet faceplates and individual outlet connectors
    - c. Termination panels, blocks, trays
    - d. Telecom Room entry and exit pathways
    - e. Telecommunication cable tray and conduit pathways
  - 2. Label each component with a machine-generated label where it is accessible for administration.
  - 3. Provide on all outlet faceplates installed under this Work machine-generated labels with the outlet ID clearly printed, in uppercase lettering. Label shall be of a contrasting color to the faceplate color.
  - 4. Provide on all termination blocks installed under this Work, machine-generated designation strips with the cable ID clearly printed and pair number, in uppercase lettering.

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5. Provide on all patch panels installed under this Work, machine-generated label with the cable ID and port number clearly printed in uppercase lettering. Each panel shall have a unique identification label as well.
6. Provide on all cables installed under this work, machine-generated labels with the cable ID clearly printed, in black uppercase lettering on a permanent adhesive, white label stock, covered with a permanent water resistant sealer. Labels shall be placed on both ends of each cable at no more than 6" from the point at which the cable is broken out into individual copper pairs or strands from the connector or termination block or patch panel
7. Provide all labels in accordance with Owner's labeling standards and in accordance with the approved cable termination schedule.
8. Hand lettered label stock will not be accepted for final installation. Hand lettered stock is acceptable only for temporary labeling required during construction phases.
9. All cable IDs shall be both physically and visually accessible upon completion of the project. Label locations shall be such that all labels can be easily seen and read without disassembling cable bundles or stressing cable connections in order to gain visual access.
10. If at any time during the project, any label becomes illegible, is removed, or is found to be positioned so that it will not be easily readable when cable termination and dressing are completed, the Contractor shall immediately replace it with a duplicate preprinted label.

3.03 RE-INSTALLATION

- A. No additional burden to the owner regarding costs, network down-time and/or end user interruption shall result from the re-installation of specified components. Scheduling for re-installation work shall be coordinated, in writing, with the owner prior to beginning the work.

3.04 CLOSEOUT ACTIVITIES

- A. Contractor shall provide documentation of all telecommunications system components under this section utilized throughout the site for review and reference by the Owner and A/E team.
- B. Contractor to submit all as-built drawings required prior to acceptance by the Owner.

END OF SECTION

PART 1 - GENERAL

1.01 GENERAL PROVISIONS

- A. Attention is directed to the CONTRACT AND GENERAL CONDITIONS and all Sections within DIVISION 01 - GENERAL REQUIREMENTS which are hereby made a part of this Section of the Specifications.

1.02 DESCRIPTION OF WORK

- A. Work Included: Provide labor, materials and equipment necessary to complete the work of this Section, including but not limited to the following:
  - 1. Copper cable test device
  - 2. Optical fiber cable test device
  - 3. Cable Test Results
  - 4. As-built drawings
- B. Alternates: Not Applicable.
- C. Items To Be Installed Only: Not Applicable.
- D. Items To Be Furnished Only: Not Applicable.
- E. Related Sections include the following:
  - 1. 271119 – Communications Termination Blocks and Patch Panels
  - 2. 271513 – Communications Copper Horizontal Cabling
  - 3. 271543 – Communications Faceplates and Connectors

1.03 SUMMARY

- A. Provides specifications for a certification tester used for end to end testing, certification, and documentation of all test results to confirm the installed connectivity system complies with industry standards and specific category and performance ratings.

1.04 RELATED DOCUMENTS

- A. Architectural, mechanical, electrical, and all technology drawings.

1.05 REFERENCES

- A. Codes and Regulations: (Note: Reference Division 01 for specific code versions governing the work in addition to the information noted below).

1. Refer to Section 27 05 00 – Common Work Results for Communications

PART 2 - PRODUCTS

2.01 COPPER CABLE TEST DEVICE

A. Manufacturer List:

1. EXFO
2. Fluke Networks
3. Greenlee Communications
4. Ideal Networks

B. Product Options: Select analyzer to comprehensively certify each category rated connection and record results verifying compliance with TIA performance specifications to meet the category rating of the system.

1. Fluke Networks DTX Cable Analyzer, Model No. DTX-1800
2. Fluke Networks DSX Cable Analyzer, Model No. DSX-5000

C. Description:

1. Must meet or exceed TIA Level IV compliant network cable-testing device certification by an independent laboratory, such as Intertek, for verification of high speed, TIA T568 compliant cables.
2. Copper test equipment must be capable of certifying Category-3, Category-5e, Category 6 and Category 6A UTP/ScTP links or channels independent of termination hardware configuration (RJ45 port or 110-style) for each level of performance.
3. Provide full 2-way Autotest of Category-3, 5e, 6, and 6A twisted pair links.
4. All test equipment shall be capable of storing full frequency sweep data for all tests and printing color graphical reports for all swept measurements.

D. Accessory Products:

1. Interface Adapters
  - a. TIA Category-3, 5e, 6 and 6A: 100 ohm
  - b. Category/Class E permanent link adapters for TIA Cat 3, 5e 6, and 6A unshielded and shielded cables.
    - 1) RJ45 plug must meet the requirements for NEXT, FEXT and Return Loss in accordance with ANSI/TIA-568-C.2 Annex C

- 2) Twisted pair Category 5e, 6, 6A, 7 or 7A cords are not permitted as their performance degrades with use and can cause false Return Loss failures

## 2.02 OPTICAL FIBER CABLE TEST DEVICE

### A. Manufacturer List:

1. EXFO
2. Fluke Networks
3. Greenlee Communications
4. Ideal Networks

### B. Product Options:

1. Select analyzer to comprehensively certify each optical fiber connection and record results verifying compliance with TIA/EIA performance standards and manufacturer specifications.
  - a. Fluke Networks DTX Cable Analyzer, Model No. DTX-1800 or DSX-5000Qi.

### C. Description:

1. The optical fiber source shall permit full end to end testing of Multimode, Single-mode and LOMMF optical fiber cabling fully compliant with industry standards and manufacturer recommendations.
2. Available source types and wavelengths shall be as follows:
  - a. Multimode - 850nm LED and 1300nm LED.
  - b. Single-mode – 1310nm FP Laser and 1550nm FP Laser.
3. The power meter shall be calibrated to read 850, 1300, 1310 and 1550nm wavelengths.

### D. Accessory Products:

1. Interface Adapters
  - a. Fluke Networks DTX Fiber Module for Multimode cable @ 850 and 1300 nm – Model No. DTX-EFM2 or DSX-5000Qi/CertiFiber Pro for EF (encircled flux) Compliance.
  - b. Fluke Networks DTX Fiber Module for Singlemode cable @ 1310 and 1500 nm – Model No. DTX-SFM2
  - c. EF Test reference cords.

2. Fiber Microscope
  - a. Magnification of 200X or 400X for endface inspection
  - b. Optional requirements
    - 1) Video camera systems are preferred.
    - 2) Camera probe tips that permit inspection through adapters are preferred.
    - 3) It is preferable to use test equipment capable of saving and reporting the endface image.
  - c. Fluke Networks FiberInspector Mini Video Microscope – Model No. FT500; the DSX-5000Qi is preferred since it allows the images to be saved.

### PART 3 - EXECUTION

#### 3.01 EXAMINATIONS

- A. Check actual site conditions prior to start of any work. Ensure all preceding trade work associated with the telecommunications system is accurate and complete before proceeding with installation or use of products specified in this section.
- B. Verify telecommunications cabling is installed and supported, terminated, mounted in an appropriate housing or terminated on the applicable component and labeled prior to certification testing and documentation.
- C. Verify certification tester universal interface adapters and manufacturer patch cords that enable permanent link verification are in new condition not indicating any twisting or kinking resulting from incorrect storage of the tester interface adapters.
- D. Optical fiber patch cords shall be inspected to ensure connector surfaces are clean and free of defects that may affect testing results.

#### 3.02 COPPER CABLE TESTING GENERAL REQUIREMENTS

- A. Process:
  1. Certification test 100% of the installed cabling plant including all backbone and horizontal four (4) pair UTP/ or F/UTP copper connections.
  2. Follow manufacturers' instructions and recommended industry standards and guidelines to complete all TIA/EIA testing procedures to verify performance levels.
  3. Follow manufacturer requirements for self-calibration procedures.
  4. Perform all tests required by local authorities in addition to tests specified herein.

5. Update tester software to show specific project information including but not limited to:
  - a. Date and time of testing
  - b. Project name
  - c. Field technicians name
  - d. Cable identification number
  - e. Cable manufacturer, type and part number

### 3.03 CATEGORY 6 COPPER CABLE TESTING REQUIREMENTS

#### A. General Requirements

1. Every cabling link in the installation shall be tested for:
  - a. Wire Map
  - b. Length
  - c. Insertion Loss
  - d. NEXT Loss
  - e. PS NEXT Loss
  - f. ACR-F Loss
  - g. PS ACR-F Loss
  - h. Return Loss
  - i. Propagation Delay
  - j. Delay Skew

in accordance with the field test specifications defined in ANSI/TIA-568-C.2 "Commercial Balanced Twisted-Pair Telecommunications Cabling and Components Standard". This document will be referred to as the "TIA Cat 6 Standard."

2. The installed twisted-pair horizontal links shall be tested from the IDF in the telecommunications room to the telecommunication wall outlet in the work area for compliance with the "Permanent Link" performance specification as defined in the TIA Cat 6 Standard.
3. One hundred percent of the installed cabling links must pass the requirements of the standards mentioned in A.1 above and as further detailed in Section B. Any failing link must be diagnosed and corrected. The

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corrective action shall be followed with a new test to prove that the corrected link meets the performance requirements. The final and passing result of the tests for all links shall be provided in the test results documentation in accordance with Section C below.

4. Trained technicians who have successfully attended an appropriate training program and have obtained a certificate as proof thereof shall execute the tests. Appropriate training programs include but are not limited to installation certification programs provided by BICSI or the ACP (Association of Cabling Professionals).
5. The test equipment (tester) shall comply with the accuracy requirements for level IIIe field testers as defined in ANSI/TIA-1152. The tester including the appropriate interface adapter must meet the specified accuracy requirements. The accuracy requirements for the permanent link test configuration (baseline accuracy plus adapter contribution) are specified in Table 4 of ANSI/TIA-1152 (Table 4 in this TIA document also specifies the accuracy requirements for the Channel configuration).
6. The RJ45 test plug shall fall within the values specified in ANSI/TIA-568-C Annex C for NEXT, FEXT and Return Loss.
7. The tester shall be within the calibration period recommended by the vendor in order to achieve the vendor-specified measurement accuracy.
8. The tester interface adapters must be of high quality and the cable shall not show any twisting or kinking resulting from coiling and storing of the tester interface adapters. In order to deliver optimum accuracy, preference is given to a permanent link interface adapter for the tester that can be calibrated to extend the reference plane of the Return Loss measurement to the permanent link interface. The contractor shall provide proof that the interface has been calibrated within the period recommended by the vendor. To ensure that normal handling on the job does not cause measurable Return Loss change, the adapter cord cable shall not be of twisted-pair construction.
9. The Pass or Fail condition for the link-under-test is determined by the results of the required individual tests (detailed in Section 4.2.2 of ANSI/TIA-1152). Any Fail or Fail\* result yields a Fail for the link-under-test. In order to achieve an overall Pass condition, the results for each individual test parameter must Pass or Pass\*.
10. A Pass or Fail result for each parameter is determined by comparing the measured values with the specified test limits for that parameter. The test result of a parameter shall be marked with an asterisk (\*) when the result is closer to the test limit than the accuracy of the field tester. The field tester manufacturer must provide documentation as an aid to interpret results marked with asterisks. To which extent '\*' results shall determine approval or disapproval of the element under test shall be defined in the relevant detail specification, or agreed on as a part of a contractual specification.

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11. A representative of the end-user shall be invited to witness field testing. The representative shall be notified of the start date of the testing phase five business days before testing commences.
12. A representative of the end-user will select a random sample of 5% of the installed links. The representative (or his authorized delegate) shall test these randomly selected links and the results are to be stored in accordance with the prescriptions in Section I.C. The results obtained shall be compared to the data provided by the installation contractor. If more than 2% of the sample results differ in terms of the pass/fail determination, the installation contractor under supervision of the end-user representative shall repeat 100% testing and the cost shall be borne by the installation contractor.

B. Performance Test Parameters

The test parameters for Cat 6 are defined in the TIA Cat 6 standard. The test of each link shall contain all of the following parameters as detailed below. In order to pass the test, all measurements (at each frequency in the range from 1 MHz through 250 MHz) must meet or exceed the limit value determined in the above-mentioned standard.

1. Wire Map - Shall report "Pass" if the wiring of each wire-pair from end to end is determined to be correct. The Wire Map results shall include the continuity of the shield connection if present.
2. Length - The field tester shall be capable of measuring length of all pairs of a basic link or channel based on the propagation delay measurement and the average value for NVP<sup>(1)</sup>. The physical length of the link shall be calculated using the pair with the shortest electrical delay. This length figure shall be reported and shall be used for making the Pass/Fail decision. The Pass/Fail criteria are based on the maximum length allowed for the Permanent Link configuration (90 meters – 295 feet) plus 10% to allow for the variation and uncertainty of NVP.
3. Insertion Loss (Attenuation) - Insertion Loss is a measure of signal loss in the permanent link or channel. The term "Attenuation" has been used to designate "Insertion Loss". Insertion Loss shall be tested from 1 MHz through 250 MHz in maximum step size of 1 MHz. It is preferred to measure insertion loss at the same frequency intervals as NEXT Loss in order to provide a more accurate calculation of the Attenuation-to-Crosstalk ratio (ACR) parameter. Minimum test results documentation (summary results): Identify the worst wire pair (1 of 4 possible). The test results for the worst wire pair must show the highest attenuation value measured (worst case), the frequency at which this worst case value occurs, and the test limit value at this frequency.
4. NEXT Loss - Pair-to-pair near-end crosstalk loss (abbreviated as NEXT Loss) shall be tested for each wire pair combination from each end of the link (a total of 12 pair combinations). This parameter is to be measured from 1 through 250 MHz. NEXT Loss measures the crosstalk disturbance on a wire pair at the end from which the disturbance signal is transmitted (near-end) on the

disturbing pair. The maximum step size for NEXT Loss measurements shall not exceed the maximum step size defined in the standard as shown in Table 1. Minimum test results documentation (summary results): Identify the wire pair combination that exhibits the worst case NEXT margin<sup>(2)</sup> and the wire pair combination that exhibits the worst value of NEXT (worst case). NEXT is to be measured from each end of the link-under-test. These wire pair combinations must be identified for the tests performed from each end. Each reported case should include the frequency at which it occurs as well as the test limit value at this frequency

Table 1 - Maximum frequency step size as defined in ANSI/TIA-1152

Frequency Range (MHz)	Maximum Step size (MHz)
1 – 31.25	0.15
31.26 – 100	0.25
100 – 250	0.50

5. PSNEXT Loss - Power Sum NEXT Loss shall be evaluated and reported for each wire pair from both ends of the link under-test (a total of eight results). PS NEXT Loss captures the combined near-end crosstalk effect (statistical) on a wire pair when all other pairs actively transmit signals. Like NEXT this test parameter must be evaluated from 1 through 250 MHz and the step size may not exceed the maximum step size defined in the standard as shown in Table 1.
6. ACR-F, pair-to-pair - Attenuation Crosstalk Ratio Far-end is calculated from the pair-to-pair FEXT Loss. It shall be measured for each wire-pair combination from both ends of the link under-test. FEXT Loss measures the crosstalk disturbance on a wire pair at the opposite end (far-end) from which the transmitter emits the disturbing signal on the disturbing pair. FEXT is measured to compute ACR-F Loss that must be evaluated and reported in the test results. ACR-F measures the relative strength of the far-end crosstalk disturbance relative to the attenuated signal that arrives at the end of the link. This test yields 24 wire pair combinations. ACR-F is to be measured from 1 through 250 MHz and the maximum step size for FEXT Loss measurements shall not exceed the maximum step size defined in the standard as in Minimum test results documentation (summary results): Identify the wire pair that exhibits the worst-case margin and the wire pair that exhibits the worst value for PS NEXT. These wire pairs must be identified for the tests performed from each end. Each reported case should include the frequency at which it occurs as well as the test limit value at this frequency.
7. PS ACR-F Loss - Power Sum Attenuation Crosstalk Ratio Far-end is a calculated parameter that combines the effect of the FEXT disturbance from three wire pairs on the fourth one. This test yields eight wire-pair combinations. Each wire-pair is evaluated from 1 through 250 MHz in frequency increments that do not exceed the maximum step size defined in the standard as shown in Table 1. Minimum test results documentation (summary results): Identify the wire pair that exhibits the worst pair combinations must be identified for the tests performed from each end.

Each reported case should include the frequency at which it occurs as well as the test limit value at this frequency.

8. Return Loss - Return Loss (RL) measures the total energy reflected on each wire pair. Return Loss is to be measured from both ends of the link-under-test for each wire pair. This parameter is also to be measured from 1 through 250 MHz in frequency increments that do not exceed the maximum step size defined in the standard as shown in Table 1. Minimum test results documentation (summary results): Identify the wire pair that exhibits the worst-case margin and the wire pair that exhibits the worst value for Return Loss. These wire pairs must be identified for the tests performed from each end. Each reported case should include the frequency at which it occurs as well as the test limit value at this frequency.
9. Propagation Delay - Propagation delay is the time required for the signal to travel from one of the link to the other. This measurement is to be performed for each of the four wire pairs. Minimum test results documentation (summary results): Identify the wire pair with the worst-case propagation delay. The report shall include the propagation delay value measured as well as the test limit value.
10. Delay Skew (as defined in the TIA Cat 6 Standard; Section 6.2.19) - This parameter shows the difference in propagation delay between the four wire pairs. The pair with the shortest propagation delay is the reference pair with a delay skew value of zero. Minimum test results documentation (summary results): Identify the wire pair with the worst-case propagation delay (the longest propagation delay). The report shall include the delay skew value measured as well as the test limit value.

C. Test Result Documentation

1. The test results/measurements shall be transferred into a Windows™-based database utility that allows for the maintenance, inspection and archiving of these test records. A guarantee must be made that the measurement results are transferred to the PC unaltered, i.e., "as saved in the tester" at the end of each test and that these results cannot be modified at a later time.
2. The database for the completed job shall be stored and delivered on CD-ROM or DVD including the software tools required to view, inspect, and print any selection of test reports.
3. A paper copy of the test results shall be provided that lists all the links that have been tested with the following summary information
  - a. The identification of the link in accordance with the naming convention defined in the overall system documentation
  - b. The overall Pass/Fail evaluation of the link-under-test including the NEXT Headroom (overall worst case) number

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- c. The date and time the test results were saved in the memory of the tester.
4. General Information to be provided in the electronic database with the test results information for each link:
- a. The identification of the customer site as specified by the end-user
  - b. The identification of the link in accordance with the naming convention defined in the overall system documentation
  - c. The overall Pass/Fail evaluation of the link-under-test
  - d. The name of the test limit selected to execute the stored test results
  - e. The cable type and the value of NVP used for length calculations
  - f. The date and time the test results were saved in the memory of the tester
  - g. The brand name, model and serial number of the tester
  - h. The identification of the tester interface
  - i. The revision of the tester software and the revision of the test standards database in the tester
  - j. The test results information must contain information on each of the required test parameters that are listed in Section B and as further detailed below under paragraph C5 & C6.
5. In-link (In-Channel) detailed test results - The detailed test results data to be provided in the electronic database for must contain the following information:

For each of the frequency-dependent test parameters, the value measured at every frequency during the test is stored. The PC-resident database program must be able to process the stored results to display and print a color graph of the measured parameters. The PC-resident software must also provide a summary numeric format in which some critical information is provided numerically as defined by the summary results (minimum numeric test results documentation) as outlined above for each of the test parameters.

- a. Length: Identify the wire-pair with the shortest electrical length, the value of the length rounded to the nearest 0.1 m (1) and the test limit value
- b. Propagation delay: Identify the pair with the shortest propagation delay, the value measured in nanoseconds (ns) and the test limit value

- c. Delay Skew: Identify the pair with the largest value for delay skew, the value calculated in nanoseconds (ns) and the test limit value
- d. Insertion Loss (Attenuation): Minimum test results documentation as explained in Section B for the worst pair
- e. Return Loss: Minimum test results documentation as explained in Section B for the worst pair as measured from each end of the link
- f. NEXT, ACR-F: Minimum test results documentation as explained in Section B for the worst pair combination as measured from each end of the link
- g. PS NEXT and PS ACR-F: Minimum test results documentation as explained in Section B for the worst pair as measured from each end of the link

(1): Nominal Velocity of Propagation (NVP) expresses the speed of the electrical signals along the cabling link in relation to the speed of light in vacuum ( $3 \times 10^8$  m/second). Insulation characteristics and twist rate of the wire pair influence NVP in minor ways. Typically, an 'average' value for NVP is published for all four wire-pairs in a data cable.

(2): 'Margin' designates the difference between the measured value and the corresponding test limit value. For passing links, 'worst case margin' identifies the smallest margin over the entire frequency range; the point at which the measured performance is "closest" to the test limit.

### 3.04 CATEGORY 6A COPPER CABLE TESTING REQUIREMENTS

#### A. General Requirements

- 1. Every cabling link in the installation shall be tested for:
  - a. Wire Map
  - b. Length
  - c. Insertion Loss
  - d. NEXT Loss
  - e. PS NEXT Loss
  - f. ACR-F Loss
  - g. PS ACR-F Loss
  - h. Return Loss
  - i. Propagation Delay

j. Delay Skew

in accordance with the field test specifications defined in ANSI/TIA-568-C.2 "Commercial Balanced Twisted-Pair Telecommunications Cabling and Components Standard". This document will be referred to as the "TIA Cat 6A Standard."

2. In addition to testing the "In-link" performance parameters detailed in A.1 above, Alien Crosstalk testing or "Between-link" testing shall be carried out in accordance with Section 4.7 of ANSI/TIA-1152. Alien crosstalk testing includes the PS ANEXT and PS AACR-F (Power sum alien attenuation-to-crosstalk ratio from the far end) performance parameters. The standards refer to the link-under-test for Alien Crosstalk as the disturbed link.
3. PS ANEXT and PS AACR-F shall meet or exceed the limits defined in Section 6 of the TIA Cat 6A Standard.
  - a. Selection of disturbed links: 1 % of the links in the cabling installation or 5 links, whichever is more. Chose short, medium and long links equally.
  - b. Selection of disturber links. Select all of the links that are in the same cable bundle and the most consistently positioned relative to the disturbed link as disturbing links.
4. If the margin of PS ANEXT and PS AACR-F exceeds 5 dB for the first three short, medium and long links (nine in total), further alien crosstalk testing can be discontinued.
5. The installed twisted-pair horizontal links shall be tested from the IDF in the telecommunications room to the telecommunication wall outlet in the work area for compliance with the "Permanent Link" performance specification as defined in the TIA Cat 6A Standard.
6. One hundred percent of the installed cabling links must pass the requirements of the standards mentioned in A.1 above and as further detailed in Section B. Any failing link must be diagnosed and corrected. The corrective action shall be followed with a new test to prove that the corrected link meets the performance requirements. The final and passing result of the tests for all links shall be provided in the test results documentation in accordance with Section C below.
7. Trained technicians who have successfully attended an appropriate training program and have obtained a certificate as proof thereof shall execute the tests. Appropriate training programs include but are not limited to installation certification programs provided by BICSI or the ACP (Association of Cabling Professionals).
8. The test equipment (tester) shall comply with the accuracy requirements for level IIIe field testers as defined in ANSI/TIA-1152. The tester including the appropriate interface adapter must meet the specified accuracy

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requirements. The accuracy requirements for the permanent link test configuration (baseline accuracy plus adapter contribution) are specified in Table 4 of ANSI/TIA-1152 (Table 4 in this TIA document also specifies the accuracy requirements for the Channel configuration).

9. The RJ45 test plug shall fall within the values specified in ANSI/TIA-568-C Annex C for NEXT, FEXT and Return Loss.
10. The tester shall be within the calibration period recommended by the vendor in order to achieve the vendor-specified measurement accuracy.
11. The tester interface adapters must be of high quality and the cable shall not show any twisting or kinking resulting from coiling and storing of the tester interface adapters. In order to deliver optimum accuracy, preference is given to a permanent link interface adapter for the tester that can be calibrated to extend the reference plane of the Return Loss measurement to the permanent link interface. The contractor shall provide proof that the interface has been calibrated within the period recommended by the vendor. To ensure that normal handling on the job does not cause measurable Return Loss change, the adapter cord cable shall not be of twisted-pair construction.
12. The Pass or Fail condition for the link-under-test is determined by the results of the required individual tests (detailed in Section 4.2.2 of ANSI/TIA-1152). Any Fail or Fail\* result yields a Fail for the link-under-test. In order to achieve an overall Pass condition, the results for each individual test parameter must Pass or Pass\*.
13. A Pass or Fail result for each parameter is determined by comparing the measured values with the specified test limits for that parameter. The test result of a parameter shall be marked with an asterisk (\*) when the result is closer to the test limit than the accuracy of the field tester. The field tester manufacturer must provide documentation as an aid to interpret results marked with asterisks. To which extent "\*" results shall determine approval or disapproval of the element under test shall be defined in the relevant detail specification, or agreed on as a part of a contractual specification.
14. A representative of the end-user shall be invited to witness field testing. The representative shall be notified of the start date of the testing phase five business days before testing commences.
15. A representative of the end-user will select a random sample of 5% of the installed links. The representative (or his authorized delegate) shall test these randomly selected links and the results are to be stored in accordance with the prescriptions in Section I.C. The results obtained shall be compared to the data provided by the installation contractor. If more than 2% of the sample results differ in terms of the pass/fail determination, the installation contractor under supervision of the end-user representative shall repeat 100% testing and the cost shall be borne by the installation contractor.

B. Performance Test Parameters

The test parameters for Cat 6A are defined in the TIA Cat 6A standard. The test of each link shall contain all of the following parameters as detailed below. In order to pass the test, all measurements (at each frequency in the range from 1 MHz through 500 MHz) must meet or exceed the limit value determined in the above-mentioned standard.

1. Wire Map - Shall report "Pass" if the wiring of each wire-pair from end to end is determined to be correct. The Wire Map results shall include the continuity of the shield connection if present.
2. Length - The field tester shall be capable of measuring length of all pairs of a basic link or channel based on the propagation delay measurement and the average value for NVP<sup>(1)</sup>. The physical length of the link shall be calculated using the pair with the shortest electrical delay. This length figure shall be reported and shall be used for making the Pass/Fail decision. The Pass/Fail criteria are based on the maximum length allowed for the Permanent Link configuration (90 meters – 295 feet) plus 10% to allow for the variation and uncertainty of NVP.
3. Insertion Loss (Attenuation) - Insertion Loss is a measure of signal loss in the permanent link or channel. The term "Attenuation" has been used to designate "Insertion Loss". Insertion Loss shall be tested from 1 MHz through 500 MHz in maximum step size of 1 MHz. It is preferred to measure insertion loss at the same frequency intervals as NEXT Loss in order to provide a more accurate calculation of the Attenuation-to-Crosstalk ratio (ACR) parameter. Minimum test results documentation (summary results): Identify the worst wire pair (1 of 4 possible). The test results for the worst wire pair must show the highest attenuation value measured (worst case), the frequency at which this worst case value occurs, and the test limit value at this frequency.
4. NEXT Loss - Pair-to-pair near-end crosstalk loss (abbreviated as NEXT Loss) shall be tested for each wire pair combination from each end of the link (a total of 12 pair combinations). This parameter is to be measured from 1 through 500 MHz. NEXT Loss measures the crosstalk disturbance on a wire pair at the end from which the disturbance signal is transmitted (near-end) on the disturbing pair. The maximum step size for NEXT Loss measurements shall not exceed the maximum step size defined in the standard as shown in Table 2. Minimum test results documentation (summary results): Identify the wire pair combination that exhibits the worst case NEXT margin<sup>(2)</sup> and the wire pair combination that exhibits the worst value of NEXT (worst case). NEXT is to be measured from each end of the link-under-test. These wire pair combinations must be identified for the tests performed from each end. Each reported case should include the frequency at which it occurs as well as the test limit value at this frequency

Table 2 - Maximum frequency step size as defined in ANSI/TIA-1152

Frequency Range (MHz)	Maximum Step size (MHz)
1 – 31.25	0.15
31.26 – 100	0.25
100 – 250	0.50
250-500	1.00

5. PSNEXT Loss - Power Sum NEXT Loss shall be evaluated and reported for each wire pair from both ends of the link under-test (a total of eight results). PS NEXT Loss captures the combined near-end crosstalk effect (statistical) on a wire pair when all other pairs actively transmit signals. Like NEXT this test parameter must be evaluated from 1 through 500 MHz and the step size may not exceed the maximum step size defined in the standard as shown in Table 2.
  
6. ACR-F, pair-to-pair - Attenuation Crosstalk Ratio Far-end is calculated from the pair-to-pair FEXT Loss. It shall be measured for each wire-pair combination from both ends of the link under-test. FEXT Loss measures the crosstalk disturbance on a wire pair at the opposite end (far-end) from which the transmitter emits the disturbing signal on the disturbing pair. FEXT is measured to compute ACR-F Loss that must be evaluated and reported in the test results. ACR-F measures the relative strength of the far-end crosstalk disturbance relative to the attenuated signal that arrives at the end of the link. This test yields 24 wire pair combinations. ACR-F is to be measured from 1 through 500 MHz and the maximum step size for FEXT Loss measurements shall not exceed the maximum step size defined in the standard as in Minimum test results documentation (summary results): Identify the wire pair that exhibits the worst-case margin and the wire pair that exhibits the worst value for PS NEXT. These wire pairs must be identified for the tests performed from each end. Each reported case should include the frequency at which it occurs as well as the test limit value at this frequency.
  
7. PS ACR-F Loss - Power Sum Attenuation Crosstalk Ratio Far-end is a calculated parameter that combines the effect of the FEXT disturbance from three wire pairs on the fourth one. This test yields eight wire-pair combinations. Each wire-pair is evaluated from 1 through 500 MHz in frequency increments that do not exceed the maximum step size defined in the standard as shown in Table 2. Minimum test results documentation (summary results): Identify the wire pair that exhibits the worst pair combinations must be identified for the tests performed from each end. Each reported case should include the frequency at which it occurs as well as the test limit value at this frequency.
  
8. Return Loss - Return Loss (RL) measures the total energy reflected on each wire pair. Return Loss is to be measured from both ends of the link-under-test for each wire pair. This parameter is also to be measured from 1 through 500 MHz in frequency increments that do not exceed the maximum step size defined in the standard as shown in Table 2. Minimum test results

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documentation (summary results): Identify the wire pair that exhibits the worst-case margin and the wire pair that exhibits the worst value for Return Loss. These wire pairs must be identified for the tests performed from each end. Each reported case should include the frequency at which it occurs as well as the test limit value at this frequency.

9. Propagation Delay - Propagation delay is the time required for the signal to travel from one of the link to the other. This measurement is to be performed for each of the four wire pairs. Minimum test results documentation (summary results): Identify the wire pair with the worst-case propagation delay. The report shall include the propagation delay value measured as well as the test limit value.
10. Delay Skew (as defined in the TIA Cat 6A Standard; Section 6.2.19) - This parameter shows the difference in propagation delay between the four wire pairs. The pair with the shortest propagation delay is the reference pair with a delay skew value of zero. Minimum test results documentation (summary results): Identify the wire pair with the worst-case propagation delay (the longest propagation delay). The report shall include the delay skew value measured as well as the test limit value.
11. PS ANEXT - Pair-to-pair Alien NEXT (ANEXT) contributions is measured by applying the stimulus signal at the near end to one wire pair of a disturbing link and measuring the coupled signal at the near end of a wire pair in a disturbed link. This process is repeated for every wire pair in a disturbing link. The PS ANEXT for each wire pair in a disturbed link is obtained by the power sum addition of all the pair-to-pair ANEXT results to that wire pair from all wire pairs in disturbing links. All the links that are bundles with the disturbed link need to be included as disturbing links. In addition, links that are terminated in adjacent positions in a patch panel or interconnect panel should also be included as disturbing links in this test. Minimum test results documentation (summary results): Identify the wire pair that exhibits the worst-case margin and the wire pair that exhibits the worst value for PS ANEXT. These wire pairs must be identified for the tests performed from each end. Each reported case should include the frequency at which it occurs as well as the test limit value at this frequency.
12. PS AACR-F - The pair-to-pair Alien Far End crosstalk (AFEXT) contributions is measured by applying the signal at the near end to one wire pair of a disturbing channel or permanent link and measuring the coupled signal at the far end of a wire pair in a disturbed channel or permanent link. This process is repeated for every wire pair in a disturbing link and for all links in close proximity. A normalization, which is dependent on the relative length of disturbing and disturbed link, is applied to each pair-to-pair alien FEXT measurement. Then the PS Alien Attenuation-to-Crosstalk Ratio from the Far end (PS AACR-F) for each wire pair in a disturbed channel or permanent link is obtained by the power sum addition of all the normalized pair-to-pair far end alien crosstalk results to that wire pair from all wire pairs in disturbing links in close proximity. Minimum test results documentation (summary results):

Identify the wire pair that exhibits the worst-case margin and the wire pair that exhibits the worst value for PS AACR-F. If the link or channel connects two patch panels (data center), these wire pairs must be identified for the tests performed from both ends. Each reported case should include the frequency at which it occurs as well as the test limit value at this frequency.

C. Test Result Documentation

1. The test results/measurements shall be transferred into a Windows™-based database utility that allows for the maintenance, inspection and archiving of these test records. A guarantee must be made that the measurement results are transferred to the PC unaltered, i.e., "as saved in the tester" at the end of each test and that these results cannot be modified at a later time.
2. The database for the completed job shall be stored and delivered on CD-ROM or DVD including the software tools required to view, inspect, and print any selection of test reports.
3. A paper copy of the test results shall be provided that lists all the links that have been tested with the following summary information
  - a. The identification of the link in accordance with the naming convention defined in the overall system documentation
  - b. The overall Pass/Fail evaluation of the link-under-test including the NEXT Headroom (overall worst case) number
  - c. The date and time the test results were saved in the memory of the tester.
4. General Information to be provided in the electronic database with the test results information for each link:
  - a. The identification of the customer site as specified by the end-user
  - b. The identification of the link in accordance with the naming convention defined in the overall system documentation
  - c. The overall Pass/Fail evaluation of the link-under-test
  - d. The name of the test limit selected to execute the stored test results
  - e. The cable type and the value of NVP used for length calculations
  - f. The date and time the test results were saved in the memory of the tester
  - g. The brand name, model and serial number of the tester
  - h. The identification of the tester interface

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- i. The revision of the tester software and the revision of the test standards database in the tester
  - j. The test results information must contain information on each of the required test parameters that are listed in Section B and as further detailed below under paragraph C5 & C6.
5. In-link (In-Channel) detailed test results - The detailed test results data to be provided in the electronic database for must contain the following information:

For each of the frequency-dependent test parameters, the value measured at every frequency during the test is stored. The PC-resident database program must be able to process the stored results to display and print a color graph of the measured parameters. The PC-resident software must also provide a summary numeric format in which some critical information is provided numerically as defined by the summary results (minimum numeric test results documentation) as outlined above for each of the test parameters.

- a. Length: Identify the wire-pair with the shortest electrical length, the value of the length rounded to the nearest 0.1 m (1) and the test limit value
  - b. Propagation delay: Identify the pair with the shortest propagation delay, the value measured in nanoseconds (ns) and the test limit value
  - c. Delay Skew: Identify the pair with the largest value for delay skew, the value calculated in nanoseconds (ns) and the test limit value
  - d. Insertion Loss (Attenuation): Minimum test results documentation as explained in Section B for the worst pair
  - e. Return Loss: Minimum test results documentation as explained in Section B for the worst pair as measured from each end of the link
  - f. NEXT, ACR-F: Minimum test results documentation as explained in Section B for the worst pair combination as measured from each end of the link
  - g. PS NEXT and PS ACR-F: Minimum test results documentation as explained in Section B for the worst pair as measured from each end of the link
6. Between-Link (Between-Channel) Test Results Data - A test report shall be provided for each disturbed link included in the Alien Crosstalk sample test. This test report must contain:
- a. PS ANEXT results at each frequency (See Table 2) for each wire pair in a victim link as well as the PS ANEXT results for the average of these

four wire pairs. The worst case margin and the worst values shall be provided for each wire pair and the average of the four wire pairs. PS ANEXT shall be measured and tested from the end of the link or channel where all cables are terminated at a distribution panel. In case the cabling runs from panel to panel (data center) where the worst case PS ANEXT margin is less than 2 dB, the PS ANEXT test results for each disturbed link shall be collected and saved from both ends (both panels) of the disturbed link.

- b. PS AACR-F results at each frequency tested (See Table 2) for each wire pair in a disturbed link as well as the PS AACR-F results for the average of the four wire pairs. The worst case margin and the worst values shall be provided for each wire pair and the average of the four wire pairs. PS AACR-F only needs to be measured and tested from one end of the link or channel. Connect the main DTX-1800 unit (measurement of PS AACR-F disturbance) to the disturbed link or channel at the end where all cabling links are terminated at a distribution panel. Select End 1 in the AxTalk Analyzer Software.

<sup>(1)</sup>: Nominal Velocity of Propagation (NVP) expresses the speed of the electrical signals along the cabling link in relation to the speed of light in vacuum ( $3 \times 10^8$  m/second). Insulation characteristics and twist rate of the wire pair influence NVP in minor ways. Typically, an 'average' value for NVP is published for all four wire-pairs in a data cable.

<sup>(2)</sup>: 'Margin' designates the difference between the measured value and the corresponding test limit value. For passing links, 'worst case margin' identifies the smallest margin over the entire frequency range; the point at which the measured performance is "closest" to the test limit.

### 3.05 ACCEPTANCE OF TEST RESULTS

- A. Unless otherwise specified by the Owner or the Owners representative, each cabling link shall be in compliance with the following test limits:

1. Optical loss testing

- a. Multimode and Singlemode links

- 1) The link attenuation shall be calculated by the following formulas as specified in ANSI/TIA-568-C.0.

- a)  $\text{Link Attenuation (dB)} = \text{Cable\_Attn (dB)} + \text{Connector\_Attn (dB)} + \text{Splice\_Attn (dB)}$

- b)  $\text{Cable\_Attn (dB)} = \text{Attenuation\_Coefficient (dB/km)} * \text{Length (Km)}$

- c)  $\text{Connector\_Attn (dB)} = \text{number\_of\_connector\_pairs} * \text{connector\_loss (dB)}$

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- d) Maximum allowable connector\_loss = 0.75 dB
- e) Splice\_Attn (dB) = number\_of\_splices \* splice\_loss (dB)
- f) Maximum allowable splice\_loss = 0.3 dB
- g) The values for the Attenuation\_Coefficient (dB/km) are listed in the table below:

Type of Optical Fiber	Wavelength (nm)	Attenuation coefficient (dB/km)	Wavelength (nm)	Attenuation coefficient (dB/km)
Multimode 62.5/125 μm	850	3.5	1300	1.5
Multimode 50/125 μm	850	3.5	1300	1.5
Single-mode (Inside plant)	1310	1.0	1550	1.0
Single-mode (Outside plant)	1310	0.5	1550	0.5

- 2. Magnified endface inspection
  - a. Fiber connections shall be visually inspected for endface quality.
  - b. Scratched, pitted or dirty connectors shall be diagnosed and corrected.
- B. All installed cabling links and channels shall be field-tested and pass the test requirements and analysis as described in Section 3.4. Any link or channel that fails these requirements shall be diagnosed and corrected. Any corrective action that must take place shall be documented and followed with a new test to prove that the corrected link or channel meets performance requirements. The final and passing result of the tests for all links and channels shall be provided in the test results documentation in accordance with Section 3.4.
- C. Acceptance of the test results shall be given in writing after the project is fully completed and tested in accordance with Contract Documents and to the satisfaction of the Owner.

Note: High Bandwidth applications such as 1000BASE-SX, 10GBASE-S, and FC1200 impose stringent channel loss limits. Where practical, certification should consider loss length limits that meet maximum channel (transmitter to receiver) loss.

**Performance specification for MM fiber at 850 nm**

Fiber Type		Bandwidth	1000BASE-SX		10GBASE-SR		FibreChannel 1200-MX-SN-I	
	µm	(MHz• Km)	Length (m)	Loss (dB)	Length (m)	Loss (dB)	Length (m)	Loss (dB)
OM1	62.5	200	275	2.38	33	2.5	33	2.4
OM2	50	500	550	3.56	82	2.3	82	2.2
OM3	50	2000	N/A	N/A	300	2.6	300	2.6
OM4	50	4700	N/A	N/A	400	2.9	N/A	N/A

3.06 REPAIR

- A. Any connections failing to meet referenced standards or more stringent performance requirements stated above, must be removed and replaced with connections that prove, in additional testing, to meet or exceed the performance standards set forth.

3.07 RE-INSTALLATION

- A. No additional burden to the owner regarding costs, network down-time and/or end user interruption shall result from the re-installation of specified components. Scheduling for re-installation work shall be coordinated, in writing, with the owner prior to beginning the work.

3.08 CLOSEOUT ACTIVITIES

- A. Contractor to submit all test results and any test documentation required prior to acceptance by the Owner.
- B. Record copy and as-built drawings
- C. Provide record copy drawings periodically throughout the project as requested by the Construction Manager or Owner, and at end of the project on CD-ROM. Record copy drawings at the end of the project shall be in CAD format and include notations reflecting the as built conditions of any additions to or variation from the drawings provided such as, but not limited to cable paths and termination point. CAD drawings are to incorporate test data imported from the test instruments.
- D. The as-built drawings shall include, but are not limited to block diagrams, frame and cable labeling, cable termination points, equipment room layouts and frame installation details. The as-builts shall include all field changes made up to construction completion:
  1. Field directed changes to pull schedule.
  2. Field directed changes to cross connect and patching schedule.
  3. Horizontal cable routing changes.
  4. Backbone cable routing or location changes.

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5. Associated detail drawings.

END OF SECTION 27 08 00

PART 1 - GENERAL

1.01 GENERAL PROVISIONS

- A. Attention is directed to the CONTRACT AND GENERAL CONDITIONS and all Sections within DIVISION 01 - GENERAL REQUIREMENTS which are hereby made a part of this Section of the Specifications.

1.02 DESCRIPTION OF WORK

- A. Work Included: Provide labor, materials and equipment necessary to complete the work of this Section, including but not limited to the following:
  - 1. Copper Patch Panels
- B. Alternates: Not Applicable.
- C. Items To Be Installed Only: Not Applicable.
- D. Items To Be Furnished Only: Not Applicable.
- E. Related Work: The following items are not included in this Section and will be performed under the designated Sections:
  - 1. Section 27 05 53 – Identification for Communications Systems
  - 2. Section 27 15 13 – Communications Copper Horizontal Cabling

1.03 SUMMARY

- A. Provides specifications for wall and rack/cabinet-mounted blocks, patch bays, and patch panel components utilized to terminate various telecommunications infrastructure cabling and connectivity.

1.04 RELATED DOCUMENTS

- A. Architectural, mechanical, electrical, and all technology drawings.

1.05 REFERENCES

- A. Codes and Regulations: (Note: Reference Division 01 for specific code versions governing the work in addition to the information noted below).
  - 1. Refer to Section 27 05 00 – Common Work Results for Communications

PART 2 - PRODUCTS

2.01 COPPER PATCH PANELS – CATEGORY 6

- A. Manufacturer List:

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PATCH PANELS

1. Hubbell Premise Wiring
  2. Ortronics
  3. Siemon
- B. Product Options:
1. The indicated manufacturers shall be the basis of the design and each assembly selected shall address the particular infrastructure requirements.
- C. Description:
1. UTP panels with 110-style IDC connector termination on rear.
  2. Angled style panels as indicated on drawings.
  3. Panel finish shall be black.
  4. Able to meet or exceed the channel specifications of the ANSI/TIA-568-C.2-1 standard for a Category 6 system up to 250 MHz.
  5. TIA T568B wiring scheme.
  6. Suitable for mounting in standard EIA 19-inch racks.
  7. Provided with a minimum of 48 connectors, as defined in this specification, housed in 2 RMUs of usable rack height.
  8. Strain relief for each cable terminated on the connector. Provide strain relief bars on the rear of all panels.
  9. Store cable reserve with no bends sharper than 2-inch bend radius.
  10. Provide sufficient finger space to allow connectors to be mounted and demounted readily.
  11. Space for labeling of each individual connector.
  12. Shall allow any individual cable to be terminated or otherwise handled without disturbing other cables.
  13. Complete with designation strips
  14. Used for workstation cabling terminations and riser cable terminations as indicated on drawings.
  15. Hubbell Premise Wiring NEXTSPEED® Category 6 angled patch panel, Part No. HP648A or approved equivalent.
- D. Accessory Products:

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1. Provide any accessory products related to the patch panels to provide a complete and functional infrastructure system.

2.02 COPPER PATCH PANELS – CATEGORY 6A

A. Manufacturer List:

1. Hubbell Premise Wiring
2. Ortronics
3. Siemon

B. Product Options:

1. The indicated manufacturers shall be the basis of the design and each assembly selected shall address the particular infrastructure requirements.

C. Description:

1. Shielded panels with ground lug.
2. Angled style panels as indicated on drawings.
3. Panel finish shall be black.
4. Able to meet or exceed the channel specifications of the ANSI/TIA-568-C.2-10 standard for a Category 6A system up to 500 MHz.
5. TIA T568B wiring scheme.
6. Suitable for mounting in standard EIA 19-inch racks.
7. Provided with a minimum of 48 connectors, as defined in this specification, housed in 2 RMUs of usable rack height.
8. Strain relief for each cable terminated on the connector. Provide strain relief bars on the rear of all panels.
9. Store cable reserve with no bends sharper than 2-inch bend radius.
10. Provide sufficient finger space to allow connectors to be mounted and demounted readily.
11. Space for labeling of each individual connector.
12. Shall allow any individual cable to be terminated or otherwise handled without disturbing other cables.
13. Complete with designation strips

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14. Used for workstation cabling terminations and riser cable terminations as indicated on drawings.
15. Hubbell Premise Wiring NEXTSPEED® Ascent Shielded Category 6A angled patch panel, Part No. PSJ48AU or approved equivalent.
  - a. Panels are blank. Shielded jacks must be purchased separately. Refer to Section 27 15 43.

D. Accessory Products:

1. Provide any accessory products related to the patch panels to provide a complete and functional infrastructure system.

PART 3 - EXECUTION

3.01 EXAMINATION

- A. Check actual site conditions prior to start of any work. Ensure all preceding trade work associated with the telecommunications system is accurate and complete before proceeding with installation or use of products specified in this section. Examples of work which must be checked include, but are not limited to:
1. Electrical requirements (conduit installation and capacity)
  2. The TRs are the size shown on the project drawings.
  3. Adequate clearances of doors, riser spaces and ceilings for all component of the telecommunications system.
  4. Examine and compare the telecommunications drawings and specifications with the drawings and specifications of other trades. Report any discrepancies between them to the A/E and obtain written instructions for changes or revisions.

3.02 COPPER PATCH PANELS

A. Process:

1. Install patch panels for the termination of all copper workstation cables installed under this work. Mount the patch panels into the equipment racks as shown in the drawings. Provide patch panels complete with designation strips.
2. Provide horizontal wire management panels between flat patch panels installed in each equipment rack and cabinets; angled patch panels do not require horizontal wire management panels.

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PATCH PANELS

3. Install all UTP components under the guidelines of the manufacturer's recommended instructions and per all ANSI/TIA-568C standards and manufacturer-approved industry practices as shown in the drawings.
4. The installation and performance parameters of all installed cable termination panels shall be verified by the contractor through ANSI/TIA-568C testing procedures.
5. Label all cable termination panels to identify each port and each specific panel in accordance with the TIA-606-B labeling scheme approved by the Owner.

3.03 RE-INSTALLATION

- A. No additional burden to the owner regarding costs, network down-time and/or end user interruption shall result from the re-installation of specified components. Scheduling for re-installation work shall be coordinated, in writing, with the owner prior to beginning the work.

3.04 CLOSEOUT ACTIVITIES

- A. Contractor shall provide documentation of all telecommunications system components under this section utilized throughout the site for review and reference by the Owner and A/E team.
- B. Contractor to submit all as-built drawings and any test documentation required prior to acceptance by the Owner.

END OF SECTION

PART 1 - GENERAL

1.01 GENERAL PROVISIONS

- A. Attention is directed to the CONTRACT AND GENERAL CONDITIONS and all Sections within DIVISION 01 - GENERAL REQUIREMENTS which are hereby made a part of this Section of the Specifications.

1.02 DESCRIPTION OF WORK

- A. Work Included: Provide labor, materials and equipment necessary to complete the work of this Section, including but not limited to the following:
  - 1. Vertical Cable Management Troughs
- B. Alternates: Not Applicable.
- C. Items To Be Installed Only: Not Applicable.
- D. Items To Be Furnished Only: Not Applicable.
- E. Related Work: The following items are not included in this Section and will be performed under the designated Sections:
  - 1. Section 27 11 19 – Communications Termination Blocks and Patch Panels
  - 2. Section 27 15 13 – Communications Copper Horizontal Cabling

1.03 SUMMARY

- A. Provides specifications for cable management components utilized inside each telecommunications distribution space to support the management of horizontal workstation cabling, backbone cabling, and patch cords.

1.04 RELATED DOCUMENTS

- A. Architectural, mechanical, electrical, and all technology drawings.

1.05 REFERENCES

- A. Codes and Regulations: (Note: Reference Division 01 for specific code versions governing the work in addition to the information noted below).
  - 1. Refer to Section 27 05 00 – Common Work Results for Communications

PART 2 - PRODUCTS

2.01 VERTICAL CABLE MANAGEMENT TROUGHES

- A. Manufacturer List:

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1. Chatsworth Products Inc. (CPI)
  2. Eaton Datacom
  3. Pentair Hoffman
- B. Product Options:
1. The indicated manufacturers shall be the basis of the design and each assembly selected shall address the particular infrastructure requirements.
- C. Description:
1. Used for organizing patch cords on front and incoming cables at rear of freestanding equipment racks.
  2. All vertical cable management on 19" relay racks shall be
    - a. Ends of rack rows - six inches (0'-6") or ten inches (0'-10") in width unless otherwise noted on the drawings.
  3. All vertical cable management on 19" relay racks shall be seven foot (7'-0") in height unless otherwise noted on the drawings.
  4. All vertical cable management on 19" relay racks shall be twenty inches (0'-20") in depth unless otherwise noted on the drawings.
  5. Rigid cable manager with 1U spaced plastic T-shaped cable guides (fingers) on front.
  6. Dual hinged, removable, full-length doors shall be provided on the front of the management.
  7. Rear cable rings with spin-open latches on back (no door/cover).
  8. Movable mid-section to allow for flexibility in the volume of cable management space provided in the front and rear portions of the cable manager.
  9. Openings in the middle of each manager to allow cables to pass easily front to rear.
  10. Mounted directly to equipment racks between adjacent racks and at any open rack ends as shown on equipment elevation drawings.
  11. Color: Black.
  12. Three (3) cable distribution spools shall be installed within each manager channel.

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13. Chatsworth Products Inc. (CPI) Evolution g3 Combination Vertical Cable Manager, Part No. 35571-703 or approved equivalent.

D. Accessory Products:

1. Velcro cable ties - Velcro strips  $\frac{3}{4}$ " wide, releasable and reusable 15'roll. Panduit Velcro cable ties or approved equivalent.
2. Provide any accessory products related to the wire management components to provide a complete and functional infrastructure system.

PART 3 - EXECUTION

3.01 EXAMINATION

- A. Check actual site conditions prior to start of any work. Ensure all preceding trade work associated with the telecommunications system is accurate and complete before proceeding with installation or use of products specified in this section. Examples of work which must be checked include, but are not limited to:
  1. Electrical requirements (conduit installation and capacity)
  2. The TRs are the size shown on the project drawings.
  3. Adequate clearances of doors, riser spaces, and ceilings for all component of the telecommunications system.
  4. Examine and compare the telecommunications drawings and specifications with the drawings and specifications of other trades. Report any discrepancies between them to the A/E and obtain written instructions for changes or revisions.

3.02 VERTICAL CABLE MANAGEMENT TROUGHS

A. Process:

1. Install all vertical cable management troughs per the manufacturer's recommended installation instructions, as indicated in the project drawings.

3.03 RE-INSTALLATION

- A. No additional burden to the owner regarding costs, network down-time and/or end user interruption shall result from the re-installation of specified components. Scheduling for re-installation work shall be coordinated, in writing, with the owner prior to beginning the work.

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RACK

3.04 CLOSEOUT ACTIVITIES

- A. Contractor shall provide documentation of all telecommunications system components under this section utilized throughout the site for review by the Owner and A/E team.
- B. Contractor to submit all as-built drawings and any test documentation required prior to acceptance by the Owner.

END OF SECTION

PART 1 - GENERAL

1.01 GENERAL PROVISIONS

- A. Attention is directed to the CONTRACT AND GENERAL CONDITIONS and all Sections within DIVISION 01 - GENERAL REQUIREMENTS which are hereby made a part of this Section of the Specifications.

1.02 DESCRIPTION OF WORK

- A. Work Included: Provide labor, materials and equipment necessary to complete the work of this Section, including but not limited to the following:
  - 1. 4-pair UTP station cable
- B. Alternates: Not Applicable.
- C. Items To Be Installed Only: Not Applicable.
- D. Items To Be Furnished Only: Not Applicable.
- E. Related Work: The following items are not included in this Section and will be performed under the designated Sections:
  - 1. Section 27 05 53 – Identification for Communications Systems
  - 2. Section 27 08 00 – Commissioning of Communications
  - 3. Section 27 11 19 – Communications Termination Blocks and Patch Panels
  - 4. Section 27 15 43 – Communications Faceplates and Connectors

1.03 SUMMARY

- A. Provides specifications for 4-pair copper horizontal workstation cabling to distribute network signals from telecommunications distribution spaces to workstation outlet locations.

1.04 RELATED DOCUMENTS

- A. Architectural, mechanical, electrical, and all technology drawings.

1.05 REFERENCES

- A. Codes and Regulations: (Note: Reference Division 01 for specific code versions governing the work in addition to the information noted below).
  - 1. Refer to Section 27 05 00 – Common Work Results for Communications

PART 2 - PRODUCTS

2.01 4-PAIR UTP CABLING

A. Manufacturer List:

1. Berk-Tek
2. General Cable
3. Hitachi
4. Hubbell Premise Wiring
5. Mohawk

B. Product Options:

1. The manufacturers noted above shall be the only manufacturers acceptable to the Owner and A/E.

C. Description

1. One (1) 4-pair UTP Category 6 cable with a non-plenum rated outer jacket.
2. Physical specifications: 4 twisted pair – 23 AWG, solid copper conductors, 100-Ohm nominal impedance +/- 15%.
3. Electrical characteristics: Able to meet or exceed the channel specifications of ANSI/TIA-568-C-2.1 standard, "Transmission Performance Specifications for 4-Pair 100 Ohm Category 6 Cabling", with available bandwidth up to 250 MHz.
4. Mechanical requirements:
  - a. Conductors: 23 AWG - solid bare copper
  - b. Outer Jacket: Flame retardant PVC
  - c. Conductor Insulation: FEP
  - d. Break Strength: Minimum 90 lbs.
5. Color Code:
  - a. Jacket: Blue
  - b. Insulation:
    - 1) Pair 1: White/Blue - Blue/White
    - 2) Pair 2: White/Orange - Orange/White

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- 3) Pair 3: White/Green - Green/White
  - 4) Pair 4: White/Brown - Brown/White
  6. UL listed, Type CMR.
  7. Used for workstation cabling distribution.
  8. Berk-Tek LANMARK™-1000 Category 6 cable or approved equivalent.
- D. Accessory Products:
1. Provide any accessory products related to the UTP copper 4-pair cabling required to provide a complete and functional infrastructure system.

2.02 4-PAIR STP CABLING

A. Manufacturer List:

1. Berk-Tek
2. General Cable
3. Hitachi
4. Mohawk

B. Product Options:

1. The manufacturers noted above shall be the only manufacturers acceptable to the Owner and A/E.

C. Description

1. One (1) 4-pair STP Category 6A cable with a non-plenum rated outer jacket.
2. Physical specifications: 4 twisted pair – 23 AWG, solid copper conductors, 100-Ohm nominal impedance +/- 15%.
3. Electrical characteristics: Able to meet or exceed the channel specifications of ANSI/TIA-568-C-2.10 standard, "Transmission Performance Specifications for 4-Pair 100 Ohm Category 6A Cabling", with available bandwidth up to 500 MHz.
4. Mechanical requirements:
  - a. Conductors: 23 AWG - solid bare copper
  - b. Outer Jacket: Flame retardant PVC
  - c. Conductor Insulation: FEP

- d. Break Strength: Minimum 90 lbs.
- 5. Color Code:
  - a. Jacket: Blue
  - b. Insulation:
    - 1) Pair 1: White/Blue - Blue/White
    - 2) Pair 2: White/Orange - Orange/White
    - 3) Pair 3: White/Green - Green/White
    - 4) Pair 4: White/Brown - Brown/White
- 6. UL listed, Type CMR.
- 7. Used for workstation cabling distribution.
- 8. Berk-Tek LANMARK™-LANmark-10G FTP Riser Category 6A, F/UTP cable or approved equivalent.

D. Accessory Products:

- 1. Provide any accessory products related to the UTP copper 4-pair cabling required to provide a complete and functional infrastructure system.

PART 3 - EXECUTION

3.01 EXAMINATION

- A. Check actual site conditions prior to start of any work. Ensure all preceding trade work associated with the telecommunications system is accurate and complete before proceeding with installation or use of products specified in this section. Examples of work which must be checked include, but are not limited to:
  - 1. Electrical requirements (conduit installation and capacity)
  - 2. The TRs are the size shown on the project drawings.
  - 3. Adequate clearances of doors, riser spaces and ceilings for all component of the telecommunications system.
  - 4. Examine and compare the telecommunications drawings and specifications with the drawings and specifications of other trades. Report any discrepancies between them to the A/E and obtain written instructions for changes or revisions.

3.02 4-PAIR CABLING INSTALLATION

A. Process:

1. Install all horizontal station cabling per the manufacturer's recommended installation instructions, under the guidelines of ANSI/TIA-568C and BICSI standards, and in quantities indicated in the drawings.
2. Install all cables with proper attention paid to bend radii, pulling method, attachment method, and pulling forces. All cable shall be pulled using an appropriate measuring device to ensure that the specified force is not exceeded as noted in ANSI/TIA-568C and BICSI guidelines. Also refer to the cable manufacturer's specifications for exact cable requirements per the particular cable type.
3. All cables shall be visually inspected for insufficient bend radius during and after pulling. Damaged cables, or those installed under questionable methods and/or circumstances shall be replaced at no additional cost to the owner.
4. Contractor shall ensure that all TIA and industry standards are met with special regards to maximum stripping length of cable jackets. No four (4) pair UTP cables shall have more than three-eighth inch (3/8") of cable jacket removed beyond the termination points.
5. Install the horizontal cabling with attention paid to aesthetic means and methods when routing cabling within IT spaces.
6. All cabling distributed horizontally through metal stud framing shall have plastic protective bushings inserted to protect cables prior to installation.
7. All cables shall be clearly labeled on both ends and in an accessible location no more than six inches (0'-6") feet from the cable ends.
8. The owner reserves the right to specify a new location for any outlet or equipment without increasing contractor unit cost – providing that the new location is specified prior to roughing-in of technology cable and is not farther than ten (10) feet away from the original location specified.
9. When conduits, sleeves and cable trays (provided under the electrical work) are not present, support all cables with J-hooks or cable straps mounted to the ceiling above. Provide supports at maximum 5-foot intervals. Do not install more than 24 cables in any single J-hook or support. When more than 24 cables must be installed, provide additional J-hooks or cable straps.
10. Install workstation cable in accordance with this Specification, the approved Cable Termination Schedule, the manufacturer's recommendations, and the Telecommunications Distribution Drawings.

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HORIZONTAL CABLING

11. After dressing each cable to its final location, remove only enough jacketing to allow the conductors to be splayed and terminated in a neat and uniform fashion. Every effort shall be made to maintain jacketing integrity by removing only as much jacketing as is practical to accomplish termination. For twisted pair cables, maintain the manufacturers' twisting of the wire pairs through to the point of termination.
12. Install all UTP cable according to manufacturer's installation standards.
13. Terminate all cables neatly, with enough slack to pull off, test, re-cut and re-terminate each cable as needed.
14. When pulling cables through conduits, leave in-place all draglines for future use.
15. Provide a 1-foot service loop at all workstation locations unless otherwise noted. The workstation loops shall be stored at the top of each conduit stub-up in the accessible ceiling area, or wherever it is possible to be concealed and supported.
16. Provide Velcro tie wraps to organize and bundle all category rated cabling installed under this Work. Install the approved Velcro strips long enough to overlap at least 1.5" around the installed cables. Plastic tie wraps shall not be used.
17. Do not allow telecommunication cables to run parallel with electrical cables/conduits, unless they are separated by a minimum of 12 inches.
18. Any telecommunications cables that must cross over electrical cables/conduits shall do so only at 90-degree angles.
19. Do not lay telecommunications cables unprotected on the floor at any time. If cables must be left on any floor, protect the cables so that they may not be walked on or have any material or equipment placed or rolled on top.
20. Maintain manufacturer's recommended minimum bend radius of the cables. Do not stretch, stress, tightly coil, bend or crimp the workstation cables during the installation or when leaving them out of the way of other trades during the staging of the work. The Contractor, at the Contractor's sole expense, shall replace all abused or stressed cables.

3.03 RE-INSTALLATION

- A. No additional burden to the owner regarding costs, network down-time and/or end user interruption shall result from the re-installation of specified components. Scheduling for re-installation work shall be coordinated, in writing, with the owner prior to beginning the work.

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COMMUNICATIONS COPPER  
HORIZONTAL CABLING

3.04 CLOSEOUT ACTIVITIES

- A. Contractor shall provide documentation of all telecommunications system components under this section utilized throughout the site for review and reference by the Owner and A/E team.
- B. Contractor to submit all as-built drawings and any test documentation required prior to acceptance by the Owner.

END OF SECTION

PART 1 - GENERAL

1.01 GENERAL PROVISIONS

- A. Attention is directed to the CONTRACT AND GENERAL CONDITIONS and all Sections within DIVISION 01 - GENERAL REQUIREMENTS which are hereby made a part of this Section of the Specifications.

1.02 DESCRIPTION OF WORK

- A. Work Included: Provide labor, materials and equipment necessary to complete the work of this Section, including but not limited to the following:
  - 1. UTP Connectors
  - 2. STP Connectors
  - 3. Outlet Housing Components (faceplates etc...)
- B. Alternates: Not Applicable.
- C. Items To Be Installed Only: Not Applicable.
- D. Items To Be Furnished Only: Not Applicable.
- E. Related Work: The following items are not included in this Section and will be performed under the designated Sections:
  - 1. Section 27 05 53 – Identification for Communications Systems
  - 2. Section 27 08 00 – Commissioning of Communications
  - 3. Section 27 15 13 – Communications Copper Horizontal Cabling

1.03 SUMMARY

- A. Provides specifications for horizontal workstation cable termination components and outlet housing components. Includes wall-mount, floor-mount, and ceiling-mount components to support the various workstation outlets throughout the cabling plant.

1.04 RELATED DOCUMENTS

- A. Architectural, mechanical, electrical, and all technology drawings.

1.05 REFERENCES

- A. Codes and Regulations: (Note: Reference Division 01 for specific code versions governing the work in addition to the information noted below).
  - 1. Refer to Section 27 05 00 – Common Work Results for Communications

PART 2 - PRODUCTS

2.01 UTP CONNECTORS

A. Manufacturer List:

1. Hubbell Premise Wiring
2. Ortronics
3. Siemon

B. Product Options:

1. The indicated manufacturers shall be the basis of the design and each assembly selected shall address the particular infrastructure requirements.

C. Description:

1. Non-keyed 8 pin modular connectors, suitable to terminate UTP 4-pair cables. Suitable to be mounted in corresponding faceplate, mounting plate or surface mount box.
2. Provide Category 6 rated eight-conductor RJ45 connector.
3. TIA T568B wiring scheme.
4. Performance criteria: Able to meet or exceed the channel specifications of the ANSI/TIA-568-C.2-1 standard for Category 6 system performance up to 250 MHz.
5. Color:
  - a. Data 1 – Blue
  - b. Data 2 - Green
6. Colors to be coordinated with Architect during submittal phase.
7. Hubbell Premise Wiring NEXTSPEED® Category 6 connectors, Part No. HXJ6B (blue) and HXJ6GN (green) or approved equivalent.

D. Accessory Products:

1. Color-coded Icons – furnish and install (1) color-coded icon for each UTP connector installed in this project. Exact colors and styles shall be determined during product submittal review.
2. Provide any accessory products related to the UTP connectors required to provide a complete and functional infrastructure system.

2.02 STP CONNECTORS

A. Manufacturer List:

1. Hubbell Premise Wiring
2. Ortronics
3. Siemon

B. Product Options:

1. The indicated manufacturers shall be the basis of the design and each assembly selected shall address the particular infrastructure requirements.

C. Description:

1. Non-keyed 8 pin modular connectors, suitable to terminate STP 4-pair cables. Suitable to be mounted in corresponding faceplate, mounting plate or surface mount box.
2. Provide Category 6A rated eight-conductor RJ45 connector.
3. TIA T568B wiring scheme.
4. Performance criteria: Able to meet or exceed the channel specifications of the ANSI/TIA-568-C.2-10 standard for Category 6A system performance up to 500 MHz.
5. Color: White
6. Colors to be coordinated with Architect during submittal phase.
7. Hubbell Premise Wiring NEXTSPEED® Ascent Shielded Category 6A connectors, Part No. SJ6A or approved equivalent.

D. Accessory Products:

1. Color-coded Icons – furnish and install (1) color-coded icon for each UTP connector installed in this project. Exact colors and styles shall be determined during product submittal review.
2. Provide any accessory products related to the UTP connectors required to provide a complete and functional infrastructure system.

2.03 OUTLET HOUSING COMPONENTS

A. Manufacturer List:

1. Hubbell Premise Wiring
2. Ortronics

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AND CONNECTORS

3. Siemon

B. Product Options:

1. The indicated manufacturers shall be the basis of the design and each assembly selected shall address the particular infrastructure requirements.

C. Description:

1. All outlet housings at the various technology outlet locations shall provide the designated number modular insert ports as indicated in the drawings.
2. All flush-mounted faceplates shall be available in one (1), two (2), three (3), four (4), six (6) port configurations of the same single gang style outlet and eight (8) port configurations of the same double gang style outlet.
3. Faceplates for wall-mounted phones shall be one (1) port stainless-steel single gang faceplates that have wall-mount lugs allowing vertical phone mounting.
4. Faceplates for flush floor mounted outlets shall be coordinated with the floor box that will be selected and installed outside the scope of this section.
5. System furniture faceplates shall be capable of fitting in the furniture system selected by the Owner. Quantity of furniture faceplates shall satisfy outlet jack requirements. Furniture faceplate extenders shall be used (if required) to maintain proper bend radii within the furniture raceway/pathway.
6. Surface mounted boxes shall be capable of the quantity of outlet jack requirements at each outlet locations indicated in the drawings. Provision (1) surface mount outlet box at all furniture-mounted outlet locations and Wireless Access point locations in the ceiling.
7. Surface-raceway mounted outlets shall be capable of being installed within surface-raceway. Contractor to provide appropriate mounting bezels and keystone jacks (as necessary) for proper mounting within surface raceway.
8. All outlet-housings shall provide a clear TIA-606-B labeling location for both the individual outlet port and the entire outlet housing location, unless otherwise indicated in the project drawings.
9. All faceplates shall be provided in a color that matches the electrical trim color unless otherwise noted in the drawings. Colors to be coordinated with Architect during submittal phase.
10. Hubbell Premise Wiring iSTATION single-gang wallplates with ID windows or approved equivalent.
  - a. 1-port - Part No. IFP11W
  - b. 2-port - Part No. IFP12W

- c. 3-port - Part No. IFP13W
- d. 4-port - Part No. IFP14W
- e. 6-port - Part No. IFP16W

D. Accessory Products:

- 1. Provide any accessory products related to the workstation outlet housing components required to provide a complete and functional infrastructure system.

PART 3 - EXECUTION

3.01 EXAMINATION

- A. Check actual site conditions prior to start of any work. Ensure all preceding trade work associated with the telecommunications system is accurate and complete before proceeding with installation or use of products specified in this section.
- B. Confirm all housings including back boxes, floor boxes and poke-throughs provided for the telecommunications connectivity system will support the installation of project approved manufacturer components prior to purchase of the components described in this specification.

3.02 UTP CONNECTORS

A. Process:

- 1. Install all connectors under the guidelines of the manufacturers' recommended instructions and per all TIA-568-C standards, BICSI guidelines, and manufacturer approved industry practices.
- 2. The installation and performance parameters of all installed couplers and connectors shall be verified by the trade contractor through TIA-568-C testing procedures.
- 3. Color of all connectors shall be coordinated with the Architect and/or Owner before purchase and installation.

3.03 OUTLET HOUSINGS

A. Process:

- 1. Color of all outlet housing components shall be coordinated with the Architect and/or Owner before purchase and installation.
- 2. All technology outlets located on walls shall be flush mounted, level and plumb.
- 3. All technology outlets shall be mounted at right angles and parallel to the floor, unless installation requirements or design dictate otherwise.

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4. Install blank inserts in outlet housing spaces that are not being filled with cable termination modules. Blank inserts shall match the workstation housing color, unless otherwise indicated in the drawings.
5. All outlets located in systems furniture may be served from a wall adjacent to the furniture cluster or a floor box. If the cable is exposed prior to entering furniture raceway, install spiral wrap tubing to protect the cable per the manufacturer's recommendations.
6. All outlet housings as well as each individual utilized port must be labeled in accordance with the Owner-approved labeling scheme.

3.04 RE-INSTALLATION

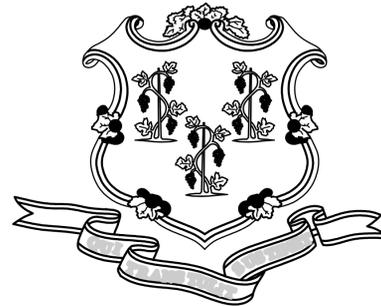
- A. No additional burden to the owner regarding costs, network down-time and/or end user interruption shall result from the re-installation of specified components. Scheduling for re-installation work shall be coordinated, in writing, with the owner prior to beginning the work.

3.05 CLOSEOUT ACTIVITIES

- A. Contractor shall provide documentation of all telecommunications system components under this section utilized throughout the site for review and reference by the Owner and A/E team.
- B. Contractor to submit all as-built drawings and any test documentation required prior to acceptance by the Owner.

END OF SECTION

# STATE OF CONNECTICUT



DEPARTMENT OF CONSTRUCTION SERVICES  
**MELODY A. CURREY**  
 COMMISSIONER

WESTERN CONNECTICUT STATE UNIVERSITY  
**JOHN B. CLARK**  
 PRESIDENT

DANNEL P. MALLOY GOVERNOR

# WESTERN CONNECTICUT STATE UNIVERSITY

## LITCHFIELD RESIDENCE HALL IT INFRASTRUCTURE UPGRADES DCS PROJECT NO. BI-RD 291 MIDTOWN CAMPUS

### INDEX OF DRAWINGS

C-1	COVER SHEET
IT-001	COVER SHEET-IT
IT-002	LEGEND-IT
IT-101	FIRST FLOOR PLAN-IT
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IT-601	DETAILS-IT



WCSU  
 Planning and Engineering  
 181 White Street  
 Danbury, CT 06810  
 www.wcsu.edu

Revisions	
No.	Date



**IT INFRASTRUCTURE UPGRADES**  
**LITCHFIELD HALL**

**Cover Sheet**

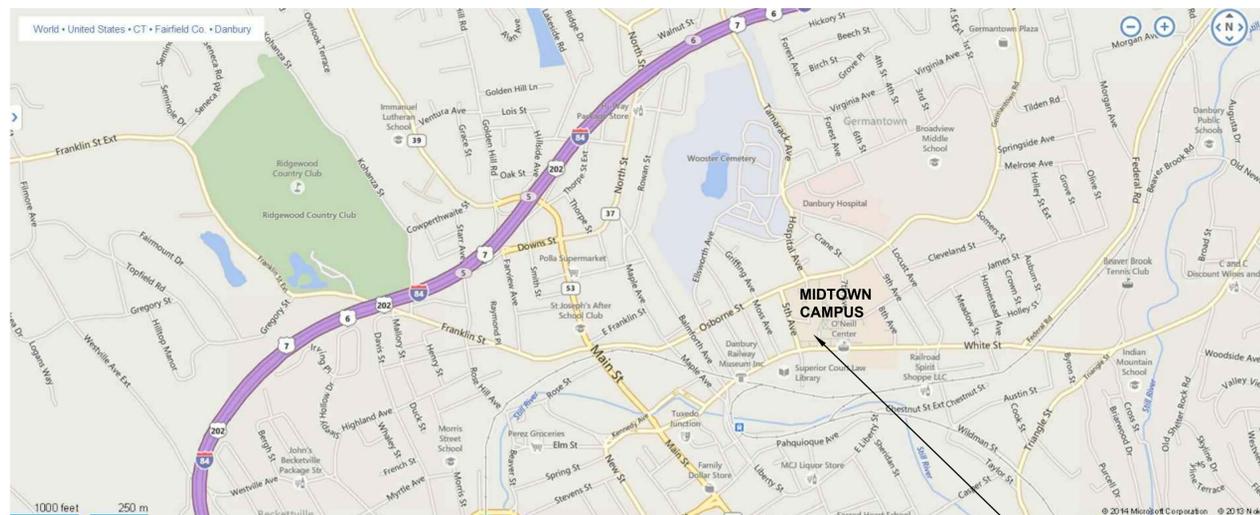
Project No. BI-RD 291

By:EAR

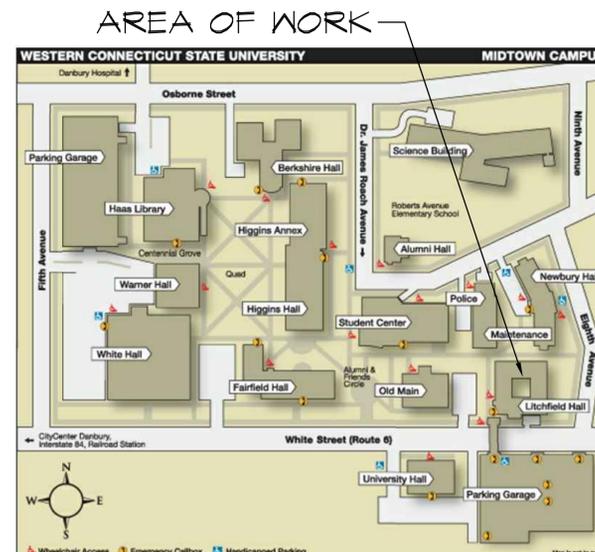
Scale: AS NOTED

Issue Date:09/12/16

**C-1**



LOCATION MAP  
 N. T. S.



MIDTOWN CAMPUS MAP  
 N. T. S.

— LITCHFIELD HALL

IT ABBREVIATIONS	
ABBREVIATION	DESCRIPTION
AFC	ABOVE FINISHED CEILING
AFF	ABOVE FINISHED FLOOR
AHJ	AUTHORITY HAVING JURISDICTION
APPROX	APPROXIMATE
AV	AUDIOVISUAL
BDF	BUILDING DISTRIBUTION FRAME
BET	BUILDING ENTRANCE TERMINAL
C	CONDUIT(S)
CAT3	TIA CATEGORY 3 RATED
CAT5	TIA CATEGORY 5 RATED
CAT5E	TIA CATEGORY 5E RATED
CAT6	TIA CATEGORY 6 RATED
CAT6A	TIA CATEGORY 6A RATED
CLG	CEILING
CM	CONSTRUCTION MANAGER
CP	CONSOLIDATION POINT
D	DEEP
DAS	DISTRIBUTED ANTENNA SYSTEM
EC	ELECTRICAL CONTRACTOR
EQ	EQUAL
EQPT	EQUIPMENT
ER	EQUIPMENT ROOM
F&I	FURNISH AND INSTALL
FO	FIBER OPTIC
FT	FOOT/FEET
FTP	FOIL TWISTED PAIR
GC	GENERAL CONTRACTOR
GND	GROUND
H	HIGH
I.D.	INSIDE DIAMETER
IMC	INTERMEDIATE METAL CONDUIT
LAN	LOCAL AREA NETWORK
LOMMF	LASER OPTIMIZED MULTIMODE FIBER OPTIC
MC	MAIN CROSS CONNECT
MDF	MAIN DISTRIBUTION FRAME
MECH	MECHANICAL
MH	MANHOLE
MM	MULTIMODE
MMF	MULTIMODE FIBER OPTIC
MPO	MULTIPLE FIBER PUSH-ON
MTD	MOUNTED
NIC	NOT IN CONTRACT
NTS	NOT TO SCALE
O.D.	OUTSIDE DIAMETER
OFE	OWNER FURNISHED EQUIPMENT
OSP	OUTSIDE PLANT
PB	PULLBOX
PBX	PRIVATE BRANCH EXCHANGE
POE	POINT OF ENTRY
PoE	POWER OVER ETHERNET
PR	PAIR
RGB	RACK GROUNDING BUSBAR
RMU	RACK MOUNTING UNIT (1RMU=1.75')
RW	RACEWAY
SM	SINGLEMODE
SMF	SINGLEMODE FIBER OPTIC
STP	SHIELDED TWISTED PAIR
TEMP	TEMPORARY
TGB	TELECOMMUNICATIONS GROUNDING BUSBAR
TMGB	TELECOMMUNICATIONS MAIN GROUNDING BUSBAR
TR	TELECOMMUNICATIONS ROOM
TSER	TELECOMMUNICATIONS SERVICE ENTRANCE ROOM
TYP	TYPICAL
U	RACK UNIT (1U=1.75')
UON	UNLESS OTHERWISE NOTED
UPS	UNINTERRUPTIBLE POWER SUPPLY
UTP	UNSHIELDED TWISTED PAIR
VOIP	VOICE OVER ETHERNET PROTOCOL
W	WIDE
WI	WITH
W/O	WITHOUT
WAN	WIDE AREA NETWORK
WAP	WIRELESS ACCESS POINT
WP	WATERPROOF
WS	WORKSTATION
WW	WIREWAY

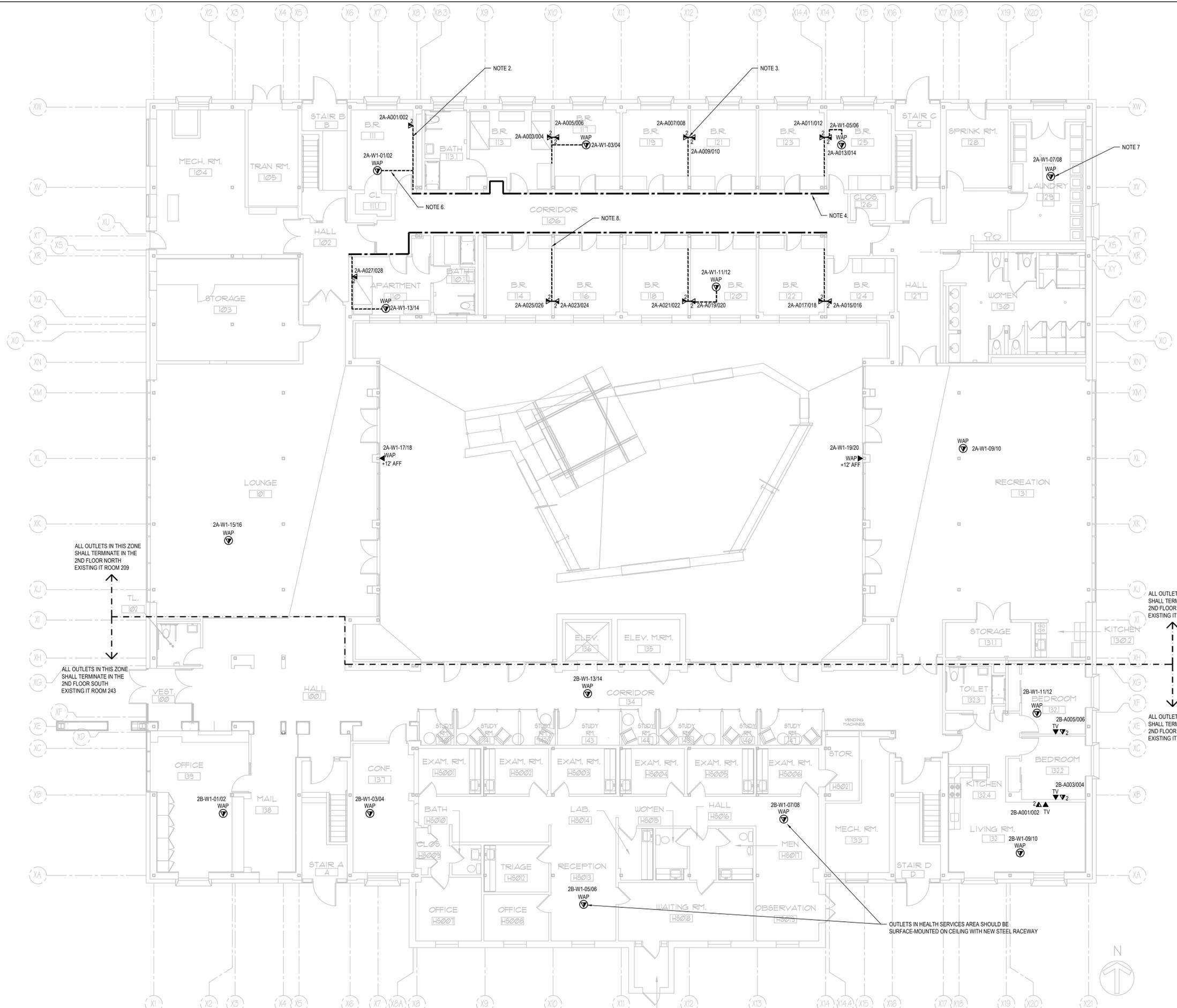
IT GENERAL NOTES	
<p><b>GENERAL</b></p> <p>INSTALL FIRESTOP TO ALL SLAB AND WALL PENETRATIONS PROVIDED FOR THE INSTALLATION OF TELECOMMUNICATIONS CABLE AS REQUIRED TO MAINTAIN FIRE RATING OR SLAB OR WALL. REVIEW ARCHITECTS PLANS FOR PARTITION TYPES AND RATINGS.</p> <p><b>CABLING</b></p> <p>PROVIDE TYPED IDENTIFICATION LABELS FOR ALL TELECOMMUNICATIONS CABLES AT BOTH ENDS.</p> <p>PROVIDE TYPED DESIGNATION LABELS FOR ALL TERMINATION BLOCKS, PATCH PANELS, AND WORKSTATION OUTLET FACEPLATES.</p> <p>INSTALL CONDUIT AND LADDER RACK FOR TELECOMMUNICATIONS WIRING TO MAINTAIN A MINIMUM OF 5" SEPARATION FROM FLUORESCENT LIGHTING.</p> <p>INSTALL EACH CABLE SET INDICATED BY THE SYMBOL LIST FROM THE OUTLET LOCATION BACK TO THE RESPECTIVE SERVING TELECOM ROOM (TR).</p> <p>ANY REASONABLE CHANGE IN LOCATION OF OUTLETS PRIOR TO ROUGHING SHALL NOT INVOLVE ADDITIONAL EXPENSE TO THE OWNER. THE TERM "REASONABLE" SHALL BE INTERPRETED AS MOVING OUTLET LOCATIONS A MAXIMUM OF 6'-0" IN ANY DIRECTION FROM THE LOCATION INDICATED ON THE DRAWINGS.</p> <p>FOLLOW MANUFACTURERS GUIDELINES FOR BEND RADIUS AND PULLING TENSIONS FOR ALL CABLE.</p> <p><b>PATHWAYS</b></p> <p>COORDINATE INSTALLATION OF CONDUITS AND CABLE TRAYS WITH THE OTHER COMPONENTS INSTALLED WITHIN THE CEILING. PREPARE SHOP DRAWINGS TO DEMONSTRATE AND ENSURE PROPER INSTALLATION OF ALL COMPONENTS.</p> <p>MAINTAIN MINIMUM BEND RADIUS OF 10X O.D. FOR CONDUITS GREATER THAN 2" DIAMETER. MAINTAIN MINIMUM BEND RADIUS OF 6X O.D. FOR CONDUITS EQUAL TO OR LESS THAN 2" DIAMETER.</p> <p>PROVIDE PULL BOXES (SIZE AS NOTED) AFTER EVERY 100' OF CONDUIT RUN OR AFTER EVERY 180" OF BEND OR AFTER EVERY 50' OF VERTICAL RUN.</p> <p>DO NOT INSTALL PULL BOXES IN LIEU OF A BEND.</p> <p>REAM AND BUSH THE ENDS OF ALL CONDUITS.</p> <p>PROVIDE AND LEAVE IN PLACE A PULL STRING IN EACH EMPTY CONDUIT.</p> <p>STUB UP CONDUIT SLEEVES THROUGH SLABS 3" ABOVE FINISHED FLOORS.</p> <p>PROVIDE HANGERS, ANCHORS, MOUNTING HARDWARE, GROUND LUGS AND STRAPS AS REQUIRED TO ENSURE PROPER INSTALLATION OF PATHWAY COMPONENTS. INSTALL ALL COMPONENTS AS PER MANUFACTURERS RECOMMENDATIONS AND PER ALL APPLICABLE CODES.</p> <p>GROUND ALL CONDUITS, SLEEVES, CABLE TRAY, AND LADDER RACK AS PER MANUFACTURERS RECOMMENDATIONS AND PER ALL APPLICABLE CODES.</p> <p>PROVIDE AT ALL LADDER RACK AND CABLE TRAY LOCATIONS: RUNWAY DROPOFFS, SPLICE HARDWARE, GROUND STRAPS, THERMAL EXPANSION PLATES, TERMINATION KITS, END SUPPORT KITS AND CEILING SUPPORT HARDWARE.</p> <p>FOR ALL WIRE MESH BASKET TYPE CABLE TRAY, PROVIDE CONNECTION HARDWARE, GROUND STRAPS, THERMAL EXPANSION PLATES, SUPPORT BRACKETS AND CEILING SUPPORT HARDWARE.</p> <p>REFER TO DISTRIBUTION PLANS FOR REQUIREMENTS OF JUNCTION BOXES AND CONDUITS TO SUPPORT WORKSTATION OUTLETS.</p> <p>WHERE CABLE IS RUN ABOVE NON-ACCESSIBLE (I.E. GYPSUM BOARD) CEILING CONSTRUCTION, CONDUIT AND PULLBOXES MUST BE INSTALLED TO PROPERLY ROUTE CABLE. PULLBOXES MUST BE LOCATED SO THAT THEY ARE ACCESSIBLE. PROVIDE ACCESS PANEL(S) IN CEILING AS REQUIRED.</p> <p>PROVIDE J-HOOKS AND CABLE STRAPS TO SUPPORT CABLE ABOVE ACCESSIBLE CEILING CONSTRUCTION, EXCEPT IN AREAS WHERE CABLE TRAY OR CONDUIT IS INDICATED.</p> <p><b>LABELING</b></p> <p>CABLE ADMINISTRATION</p> <p>PROPERLY LABEL ALL CABLES, RECEPTACLES, CONNECTION BLOCKS AND PATCH PANELS IN ACCORDANCE WITH TIA-606-B UON BY CLIENT'S PREFERRED LABELING STANDARD.</p>	<p>REPORT ANY CABLE THAT EXCEEDS 250' TO THE DESIGN TEAM. THE CABLE SHALL BE CLEARLY MARKED WITH RED TAPE AT BOTH ENDS OF EACH CABLE INDICATING THE EXACT CABLE LENGTH AND NOTED IN THE REQUIRED AS-BUILT LABEL REPORT.</p> <p>PRIOR TO SYSTEM ACCEPTANCE, THE CONTRACTOR SHALL SUBMIT AN AS-BUILT LABEL REPORT PROVIDING THE ROOM NUMBERS AND CABLE LENGTHS FOR EACH OF THE INSTALLED CABLES.</p> <p><b>LABEL REQUIREMENTS</b></p> <p>PROVIDE WHITE LABEL WITH TYPE WRITTEN LEGIBLE CHARACTERS, PRINTED WITH NON-SMEAR INK. HANDWRITTEN LABELS ARE NOT PERMITTED.</p> <p>PROVIDE LABELS WITH INDUSTRIAL GRADE SELF-ADHESIVE BACKING.</p> <p>PROVIDE LABELS FOR CABLES WITH PROTECTIVE WRAP-AROUND PLASTIC TRANSPARENT COVER WHICH WILL SERVE TO PROTECT THE INK FROM SMEARING AND SECURE THE LABEL TO THE CABLE.</p> <p>PROVIDE LABELS FOR CABLES WIDE ENOUGH FOR 23 CHARACTERS IN A SINGLE ROW.</p> <p>BACKBONE/RISER AND TIE CABLE JACKETS SHALL BE CLEARLY LABELED WITHIN EACH TELECOM ROOM, AND AT 50' INTERVALS OUTSIDE TELECOM ROOMS ABOVE CEILINGS.</p> <p><b>COORDINATION</b></p> <p>CONTRACTOR TO CAREFULLY COORDINATE THEIR WORK WITH THE WORK OF OTHER TRADES.</p> <p><b>DEMOLITION NOTES</b></p> <p>CONTRACTOR TO REMOVE ALL EXISTING CAT.3 AND CAT.5E DATA CABLING FROM THE RESIDENCE DATA OUTLET BOX ALL THE WAY BACK TO THE SERVING TELECOM ROOM. THIS INCLUDES ALL SURFACE-MOUNT CABLE RACEWAY IN THE RESIDENCES AND HALLWAYS. ALL EXISTING STATION CABLING PATCH PANELS SHALL BE DEMOLISHED.</p> <p>CATV OUTLET BOXES, RACEWAYS AND CABLING THROUGHOUT THE BUILDING SHALL REMAIN.</p> <p><b>WIRELESS ACCESS POINT (WAPS)</b></p> <p>CONTRACTOR TO INCLUDE LABOR COST FOR INSTALLATION OF ALL WAPS, PER WAP OUTLET LOCATIONS SHOWN ON FLOOR PLANS. WAPS AND MOUNTING HARDWARE SHALL BE PROVIDED BY WCSU IT GROUP.</p>

IT DRAWING LIST	
DRAWING NUMBER	DRAWING DESCRIPTION
IT-001	COVER SHEET - IT
IT-002	LEGEND - IT
IT-101	FIRST FLOOR PLAN - IT
IT-102	SECOND FLOOR PLAN - IT
IT-103	THIRD FLOOR PLAN - IT
IT-301	PART PLANS AND ELEVATIONS - IT
IT-601	DETAILS - IT

drawing title <b>COVER SHEET - IT</b>		<b>STATE OF CONNECTICUT</b> DEPARTMENT OF ADMINISTRATIVE SERVICES	
REVISIONS			
mark	date	description	
		drawing prepared by  K&K Engineering, Inc. 1000 Main Street New York, NY 10014 (212) 697-1100 www.kkeng.com	date 09/12/2016  scale N.T.S.
project LITCHFIELD HALL IT INFRASTRUCTURE UPGRADES WESTERN CONNECTICUT STATE UNIVERSITY DANBURY, CONNECTICUT		drawn by RS	approved by ER
drawing no. 16053-IT-001-002-COVER SHEET AND LEGEND.dwg		project no. BI-RD-291	<b>IT-001</b>

IT LEGEND				
SYMBOLS & ABBREVIATIONS	DESCRIPTION	CABLE	ELECTRICAL INFRASTRUCTURE	REMARKS
(X) [Symbol]	FLOOR MOUNTED OUTLET	(X) CAT6 UTP TO DESIGNATED TR; (X) DENOTES CABLE QUANTITY.	(2) 1-1/4" C. TO FLOOR BOX/POKE-THRU	-
(X) [Symbol]	CEILING MOUNTED OUTLET	(X) CAT6 UTP TO DESIGNATED TR; (X) DENOTES CABLE QUANTITY.	ERICO BACKBOX PART NO. 512HD	-
(X) [Symbol]	WALL MOUNTED OUTLET	(X) CAT6 UTP TO DESIGNATED TR; (X) DENOTES CABLE QUANTITY.	7/8" X 1-29/32" CABLE RACEWAY TO SURFACE-MOUNT OUTLET BOX	-
[Symbol]	ANALOG/POTS LINE OUTLET	(1) CAT6 UTP TO DESIGNATED TR	(1) 1" C. STUB-UP TO DOUBLE-GANG ELEC. BACKBOX WITH SINGLE-GANG TRIM RING.	-
[Symbol]	AV CONTROL PANEL OUTLET	(1) CAT6 UTP TO DESIGNATED TR	(1) 1" C. STUB-UP TO CUSTOM BACKBOX	-
[Symbol]	AV EQUIPMENT RACK OUTLET	(4) CAT6 UTP TO DESIGNATED TR	(1) 1-1/4" C. STUB-UP TO DOUBLE-GANG ELEC. BACKBOX WITH SINGLE-GANG TRIM RING.	-
[Symbol]	BUILDING MANAGEMENT SYSTEM OUTLET	(2) CAT6 UTP TO DESIGNATED TR	(1) 1" C. STUB-UP TO CUSTOM BACKBOX	-
[Symbol]	BROADCAST VIDEO OUTLET	(1) RG11 COAX. AND 2-STRAND SMF TO DESIGNATED TR	(1) 1-1/4" C. STUB-UP TO DOUBLE-GANG ELEC. BACKBOX WITH SINGLE-GANG TRIM RING.	-
[Symbol]	IP CCTV CAMERA OUTLET	(1) CAT6 UTP TO DESIGNATED TR	(1) 1" C. STUB-UP TO DOUBLE-GANG ELEC. BACKBOX WITH SINGLE-GANG TRIM RING.	-
[Symbol]	IP CCTV CEILING MOUNTED CAMERA OUTLET	(X) CAT6 UTP TO DESIGNATED TR	(1) 1" C. STUB-UP TO DOUBLE-GANG ELEC. BACKBOX WITH SINGLE-GANG TRIM RING.	-
[Symbol]	IP CLOCK OUTLET	(1) CAT6 UTP TO DESIGNATED TR	(1) 1" C. STUB-UP TO DOUBLE-GANG ELEC. BACKBOX WITH SINGLE-GANG TRIM RING.	-
[Symbol]	CARD READER OUTLET	(1) CAT6 UTP TO DESIGNATED TR	(1) 1" C. STUB-UP TO DOUBLE-GANG ELEC. BACKBOX WITH SINGLE-GANG TRIM RING.	-
[Symbol]	DOOR CONTROLLER PANEL OUTLET	(1) CAT6 UTP TO DESIGNATED TR	(1) 1" C. STUB-UP TO DOUBLE-GANG ELEC. BACKBOX WITH SINGLE-GANG TRIM RING.	-
[Symbol]	DAS OUTLET	(2) CAT6 UTP TO DESIGNATED TR	ERICO BACKBOX PART NO. 512HD	-
[Symbol]	DOOR LOCK OUTLET	(1) CAT6 UTP TO DESIGNATED TR	(1) 1" C. STUB-UP TO DOUBLE-GANG ELEC. BACKBOX WITH SINGLE-GANG TRIM RING.	-
[Symbol]	DIGITAL SIGNAGE DISPLAY OUTLET	(2) CAT6 UTP TO DESIGNATED TR	(1) 1-1/4" C. STUB-UP TO DOUBLE-GANG ELEC. BACKBOX WITH SINGLE-GANG TRIM RING.	-
[Symbol]	FURNITURE MOUNTED OUTLET	(2) CAT6 UTP TO DESIGNATED TR	N/A	-
[Symbol]	FIRE ALARM PANEL OUTLET	(1) CAT6 UTP TO DESIGNATED TR	(1) 1" C. STUB-UP TO DOUBLE-GANG ELEC. BACKBOX WITH SINGLE-GANG TRIM RING.	-
[Symbol]	FIBER OPTIC OUTLET	(1) 2-STRAND MMF TO DESIGNATED TR	(1) 1-1/4" C. STUB-UP TO DOUBLE-GANG ELEC. BACKBOX WITH SINGLE-GANG TRIM RING.	-
[Symbol]	INTERCOM DOOR STATION OUTLET	(1) CAT6 UTP TO DESIGNATED TR	CUSTOM BACKBOX FROM MANUFACTURER	-
[Symbol]	INTRUSION DETECTION SYSTEM OUTLET	(1) CAT6 UTP TO DESIGNATED TR	(1) 1" C. STUB-UP TO DOUBLE-GANG ELEC. BACKBOX WITH SINGLE-GANG TRIM RING.	-
[Symbol]	INTERACTIVE WHITE BOARD OUTLET	(2) CAT6 UTP TO DESIGNATED TR	(1) 1-1/4" C. STUB-UP TO DOUBLE-GANG ELEC. BACKBOX WITH SINGLE-GANG TRIM RING.	-
[Symbol]	ALARM SYSTEM KEYPAD OUTLET	(1) CAT6 UTP TO DESIGNATED TR	(1) 1" C. STUB-UP TO DOUBLE-GANG ELEC. BACKBOX WITH SINGLE-GANG TRIM RING.	-
[Symbol]	LIGHTING CONTROL PANEL OUTLET	(1) CAT6 UTP TO DESIGNATED TR	(1) 1" C. STUB-UP TO DOUBLE-GANG ELEC. BACKBOX WITH SINGLE-GANG TRIM RING.	-
[Symbol]	INTERCOM MASTER STATION OUTLET	(1) CAT6 UTP TO DESIGNATED TR	(1) 1-1/4" C. STUB-UP TO DOUBLE-GANG ELEC. BACKBOX WITH SINGLE-GANG TRIM RING.	-
[Symbol]	PROJECTOR OUTLET	(2) CAT6 UTP TO DESIGNATED TR	(1) 1" C. STUB-UP TO DOUBLE-GANG ELEC. BACKBOX WITH SINGLE-GANG TRIM RING.	-
[Symbol]	PROCESS LOGIC CONTROL OUTLET	(2) CAT6 UTP TO DESIGNATED TR	(1) 1" C. STUB-UP TO DOUBLE-GANG ELEC. BACKBOX WITH SINGLE-GANG TRIM RING.	-
[Symbol]	POINT-OF-SALE OUTLET	(2) CAT6 UTP TO DESIGNATED TR	(1) 1-1/4" C. STUB-UP TO DOUBLE-GANG ELEC. BACKBOX WITH SINGLE-GANG TRIM RING.	-
[Symbol]	RACEWAY MOUNTED OUTLET	(2) CAT6 UTP TO DESIGNATED TR	(1) 2" C. STUB-UP ELECTRIFIED RACEWAY (DUAL CHANNEL)	-
[Symbol]	RADIO FREQUENCY IDENTIFICATION SYSTEM OUTLET	(1) CAT6 UTP TO DESIGNATED TR	(1) 1" C. STUB-UP TO DOUBLE-GANG ELEC. BACKBOX WITH SINGLE-GANG TRIM RING.	-
[Symbol]	SMARTBOARD OUTLET	-	-	-
[Symbol]	TIME CLOCK OUTLET	(1) CAT6 UTP TO DESIGNATED TR	(1) 1" C. STUB-UP TO DOUBLE-GANG ELEC. BACKBOX WITH SINGLE-GANG TRIM RING.	-
[Symbol]	TEMPERATURE CONTROL PANEL OUTLET	(1) CAT6 UTP TO DESIGNATED TR	(1) 1" C. STUB-UP TO DOUBLE-GANG ELEC. BACKBOX WITH SINGLE-GANG TRIM RING.	-
[Symbol]	TEACHER STATION OUTLET	(2) CAT6 UTP TO DESIGNATED TR	(1) 1-1/4" C. STUB-UP TO DOUBLE-GANG ELEC. BACKBOX WITH SINGLE-GANG TRIM RING.	-
[Symbol]	TELEVISION OUTLET	(2) CAT6 UTP AND (1) RG6 COAX TO DESIGNATED TR	(1) 1-1/4" C. STUB-UP TO DOUBLE-GANG ELEC. BACKBOX WITH SINGLE-GANG TRIM RING.	-
[Symbol]	VIDEOCONFERENCE WEBCAM OUTLET	(1) CAT6 UTP TO DESIGNATED TR	(1) 1" C. STUB-UP TO DOUBLE-GANG ELEC. BACKBOX WITH SINGLE-GANG TRIM RING.	-
[Symbol]	WALL-MOUNTED TELEPHONE OUTLET	(1) CAT6 UTP TO DESIGNATED TR	(1) 1" C. STUB-UP TO DOUBLE-GANG ELEC. BACKBOX WITH SINGLE-GANG TRIM RING.	-
[Symbol]	WIRELESS ACCESS POINT OUTLET	(2) CAT6A STP TO DESIGNATED TR	(1) 1" C. STUB-UP TO DOUBLE-GANG ELEC. BACKBOX WITH SINGLE-GANG TRIM RING.	-
[Symbol]	CEILING MOUNTED WIRELESS ACCESS POINT OUTLET	(2) CAT6A STP TO DESIGNATED TR	(1) 1" C. STUB-UP TO DOUBLE-GANG ELEC. BACKBOX WITH SINGLE-GANG TRIM RING.	-
[Symbol]	WEATHER PROOF OUTLET	(2) CAT6 UTP TO DESIGNATED TR	(1) 1" C. STUB-UP TO DOUBLE-GANG ELEC. BACKBOX WITH SINGLE-GANG TRIM RING.	-
[Symbol]	COMBINATION OUTLET (FLOOR MOUNTED)	(2) CAT6 UTP TO DESIGNATED TR	(1) 1-1/4" C. STUB-UP TO MULTI-SERVICE FLOOR BOX	-
[Symbol]	COMBINATION OUTLET (WALL MOUNTED)	(2) CAT6 UTP TO DESIGNATED TR	(1) 1-1/4" C. STUB-UP TO MULTI-SERVICE WALL BOX	-
[Symbol]	FURNITURE SYSTEM INFEEED - CEILING MOUNTED	PROVIDE SPLIT-LOOM FOR CABLE BUNDLE	(1) 2" C. STUB-UP TO DOUBLE-GANG ELEC. BACKBOX WITH GROMMETED OPENING	-
[Symbol]	FURNITURE SYSTEM INFEEED - FLOOR MOUNTED	PROVIDE SPLIT-LOOM FOR CABLE BUNDLE	(1) 2" C. STUB-UP TO FLOOR BOX WITH GROMMETED OPENING	-
[Symbol]	FURNITURE SYSTEM INFEEED - WALL MOUNTED	PROVIDE SPLIT-LOOM FOR CABLE BUNDLE	(1) 2" C. STUB-UP TO DOUBLE-GANG ELEC. BACKBOX WITH GROMMETED OPENING	-
[Symbol]	CONDUIT/SLEEVE DOWN THROUGH SLAB	-	-	SIZE AS INDICATED
[Symbol]	CONDUIT/SLEEVE UP THROUGH SLAB	-	-	SIZE AS INDICATED
[Symbol]	CONDUIT STUB WITH BUSHING	-	-	SIZE AS INDICATED
[Symbol]	CONDUIT TURNING DOWN THROUGH SLAB	-	-	SIZE AS INDICATED
[Symbol]	CONDUIT TURNING UP THROUGH SLAB	-	-	SIZE AS INDICATED
[Symbol]	CONDUIT SLEEVE WITH SLEEVE QUANTITY - 4" U.O.N.	-	-	SIZE AS INDICATED
[Symbol]	EXISTING CONDUIT TO REMAIN	-	-	-
[Symbol]	EXISTING CONDUIT TO BE DEMOLISHED	-	-	-
[Symbol]	NEW CONDUIT	-	-	SIZE AS INDICATED
[Symbol]	CABLE PATHWAY IN CEILING	-	-	SUPPORTED BY J-HOOKS AND/OR CABLE STRAPS
[Symbol]	WALL-MOUNTED CABLE RACEWAY	-	-	REFER TO FLOOR PLAN DRAWING NOTES FOR SIZES.
[Symbol]	CABLE TRAY	-	-	SIZE AS INDICATED
[Symbol]	LADDER RACK	-	-	SIZE AS INDICATED
[Symbol]	RACK/CABINET MOUNTED POWER STRIP	-	-	-
[Symbol]	TELECOMMUNICATIONS MAIN GROUNDING BUSBAR	-	-	-
[Symbol]	TELECOMMUNICATIONS GROUNDING BUSBAR	-	-	-
[Symbol]	DETAIL CALLOUT	N/A	N/A	N/A
[Symbol]	ELEVATION CALLOUT	N/A	N/A	N/A

drawing title <b>LEGEND - IT</b>		<b>STATE OF CONNECTICUT</b> DEPARTMENT OF ADMINISTRATIVE SERVICES	
REVISIONS			
mark	date	description	
drawing prepared by 		date 09/12/2016	scale N.T.S.
project LITCHFIELD HALL IT INFRASTRUCTURE UPGRADES WESTERN CONNECTICUT STATE UNIVERSITY DANBURY, CONNECTICUT		drawn by RS	approved by ER
drawing no. <b>IT-002</b>		CAD no. 16053-IT-001-002-COVER SHEET AND LEGEND.dwg	project no. BI-RD-291



- NOTE:**
- ALL NEW OUTLETS ON THIS LEVEL SHALL BE SERVED FROM EXISTING IT ROOMS 209 AND 243, RESPECTIVELY. REUSE EXISTING CONDUIT PATHWAYS BETWEEN FLOORS.
  - REPLACE EXISTING WALL-MOUNTED CABLE RACEWAY WITH LARGER CAPACITY STEEL RACEWAY (WIREMOLD 2400-SERIES OR APPROVED EQUIVALENT). FASTEN RACEWAY TO CMU WALLS WITH APPROPRIATE MOUNTING SCREWS; DOUBLE-SIDED ADHESIVE TAPE IS NOT ACCEPTABLE. PAINT RACEWAY TO MATCH EXISTING WALL COLOR.
  - EXISTING OUTLETS FED THROUGH HOLE THROUGH COMMON WALL. INSTALL NEW SURFACE-MOUNTED OUTLET BOXES ON BOTH SIDES OF WALL, REPLACING EXISTING OUTLETS. FASTEN OUTLET BOXES TO CMU WALLS WITH APPROPRIATE MOUNTING SCREWS; DOUBLE-SIDED ADHESIVE TAPE IS NOT ACCEPTABLE. FIRESTOP HOLE THROUGH COMMON CMU WALL AFTER CABLE TERMINATION TO OUTLETS.
  - REPLACE EXISTING HALLWAY CABLE RACEWAY WITH NEW LARGER CAPACITY STEEL RACEWAY (WIREMOLD S4000-SERIES OR APPROVED EQUIVALENT).
  - EXISTING CATV CABLES INSTALLED WITHIN HALLWAY AND ROOM RACEWAYS SHALL REMAIN.
  - STEEL RACEWAY ON CEILING TO FEED WAPS (TYP.)
  - CONTRACTOR TO INSTALL OWNER-PROVIDED WAPS PER THE WAP OUTLET LOCATIONS INDICATED ON THE FLOOR PLANS (TYP. - FLOORS 1, 2, AND 3). OWNER TO PROVIDE WAP MOUNTING HARDWARE.
  - RACEWAY WITHIN RESIDENCES ENDS HERE. RUN CABLES FREE AIR BEHIND WARDROBE TO ABOVE HALLWAY CEILING (OR TO HALLWAY RACEWAY AS APPLICABLE). SUPPORT CABLES WITH SMALL J-HOOKS (TYP. ALL ROOMS ON ALL FLOORS).

ALL OUTLETS IN THIS ZONE SHALL TERMINATE IN THE 2ND FLOOR NORTH EXISTING IT ROOM 209

ALL OUTLETS IN THIS ZONE SHALL TERMINATE IN THE 2ND FLOOR NORTH EXISTING IT ROOM 209

ALL OUTLETS IN THIS ZONE SHALL TERMINATE IN THE 2ND FLOOR SOUTH EXISTING IT ROOM 243

ALL OUTLETS IN THIS ZONE SHALL TERMINATE IN THE 2ND FLOOR SOUTH EXISTING IT ROOM 243

OUTLETS IN HEALTH SERVICES AREA SHOULD BE SURFACE-MOUNTED ON CEILING WITH NEW STEEL RACEWAY

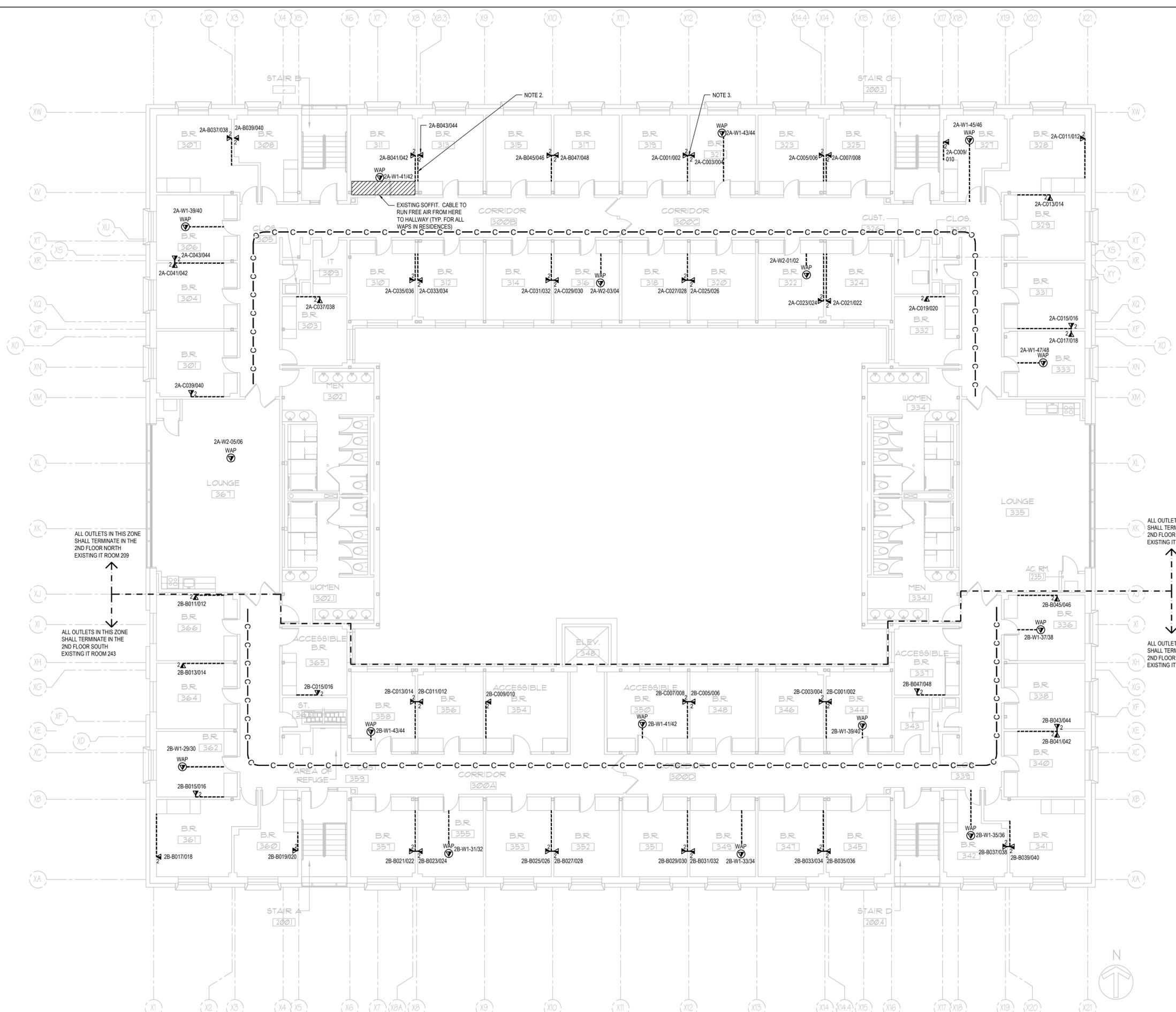
**1 FIRST FLOOR PLAN**  
IT-101 SCALE: 1/8"=1'-0"



drawing title <b>FIRST FLOOR PLAN - IT</b>		<b>STATE OF CONNECTICUT</b> DEPARTMENT OF ADMINISTRATIVE SERVICES	
REVISIONS			
mark	date	description	date
			09/12/2016
			SCALE 1/8"=1'-0"
drawing prepared by <b>K</b>		date 09/12/2016	
project LITCHFIELD HALL IT INFRASTRUCTURE UPGRADES WESTERN CONNECTICUT STATE UNIVERSITY DANBURY, CONNECTICUT		drawn by RS	
CAD no. 260534T-202-FRST FLOOR.dwg		approved by ER	
project no. BI-RD-291		drawing no. <b>IT-101</b>	







- NOTE:**
1. ALL NEW OUTLETS ON THIS LEVEL SHALL BE SERVED FROM EXISTING IT ROOMS 209 AND 243, RESPECTIVELY. REUSE EXISTING CONDUIT PATHWAYS BETWEEN FLOORS.
  2. REPLACE EXISTING WALL-MOUNTED CABLE RACEWAY WITH LARGER CAPACITY STEEL RACEWAY (WIREMOLD 2400-SERIES OR APPROVED EQUIVALENT). FASTEN RACEWAY TO CMU WALLS WITH APPROVED MOUNTING SCREWS, DOUBLE-SIDED ADHESIVE TAPE IS NOT ACCEPTABLE. PAINT RACEWAY TO MATCH EXISTING WALL COLOR.
  3. EXISTING OUTLETS FED THROUGH HOLE THROUGH COMMON WALL. INSTALL NEW SURFACE-MOUNTED OUTLET BOXES ON BOTH SIDES OF WALL, REPLACING EXISTING OUTLETS. FASTEN OUTLET BOXES TO CMU WALLS WITH APPROVED MOUNTING SCREWS, DOUBLE-SIDED ADHESIVE TAPE IS NOT ACCEPTABLE. FIRST-STOP HOLE THROUGH COMMON CMU WALL AFTER CABLE TERMINATION TO OUTLETS.
  4. EXISTING CATV CABLES INSTALLED WITHIN HALLWAY AND ROOM RACEWAYS SHALL REMAIN.

ALL OUTLETS IN THIS ZONE SHALL TERMINATE IN THE 2ND FLOOR NORTH EXISTING IT ROOM 209

ALL OUTLETS IN THIS ZONE SHALL TERMINATE IN THE 2ND FLOOR SOUTH EXISTING IT ROOM 243

ALL OUTLETS IN THIS ZONE SHALL TERMINATE IN THE 2ND FLOOR NORTH EXISTING IT ROOM 209

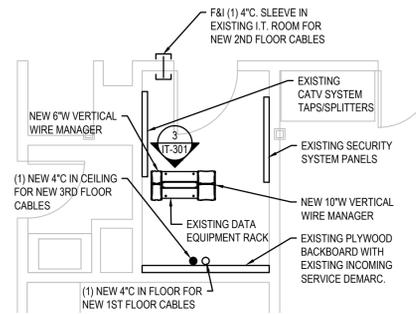
ALL OUTLETS IN THIS ZONE SHALL TERMINATE IN THE 2ND FLOOR SOUTH EXISTING IT ROOM 243

1 THIRD FLOOR PLAN  
IT-103 SCALE: 1/8"=1'-0"

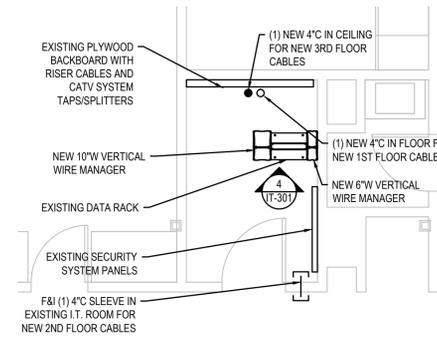


drawing title <b>THIRD FLOOR PLAN - IT</b>		<b>STATE OF CONNECTICUT</b> DEPARTMENT OF ADMINISTRATIVE SERVICES	
REVISIONS			
mark	date	description	
drawing prepared by <b>K</b>		date 09/12/2016	
project LITCHFIELD HALL IT INFRASTRUCTURE UPGRADES WESTERN CONNECTICUT STATE UNIVERSITY DANBURY, CONNECTICUT		scale 1/8"=1'-0"	
CAD no. 260534T-203-THIRD FLOOR.dwg		project no. BI-RD-291	
drawing no. <b>IT-103</b>		drawing by RS approved by ER	

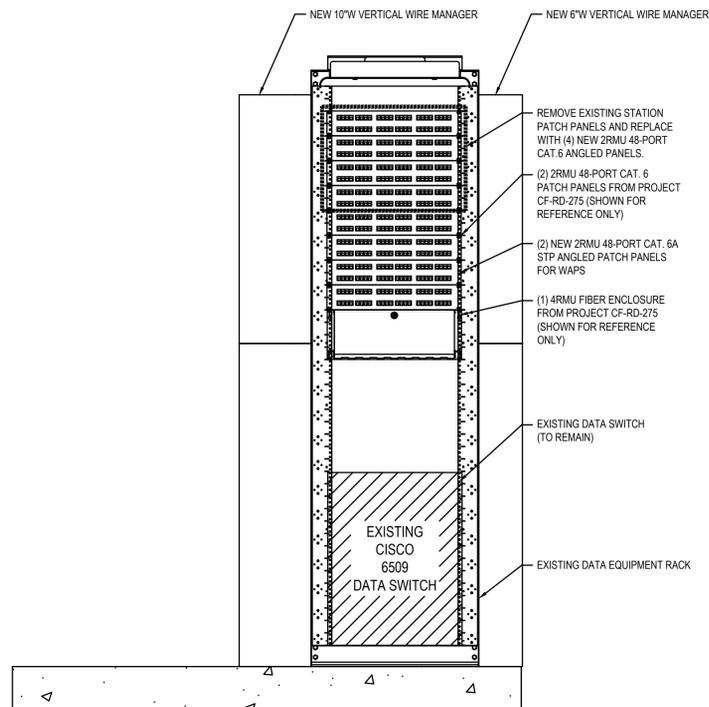




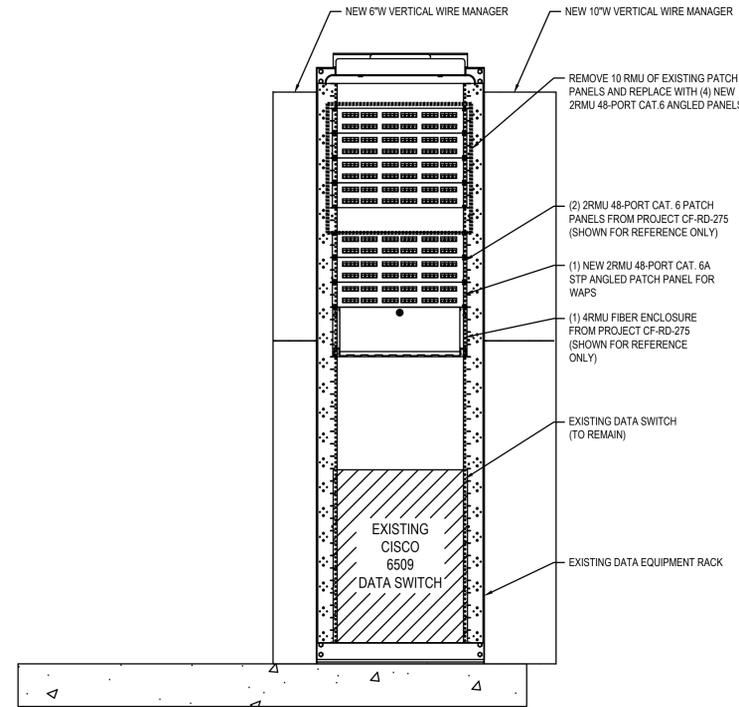
1 SECOND FLOOR IT ROOM 209 (MDF) PART PLAN  
IT-301 SCALE: 1/4"=1'-0"



2 SECOND FLOOR IT ROOM 243 PART PLAN  
IT-301 SCALE: 1/4"=1'-0"

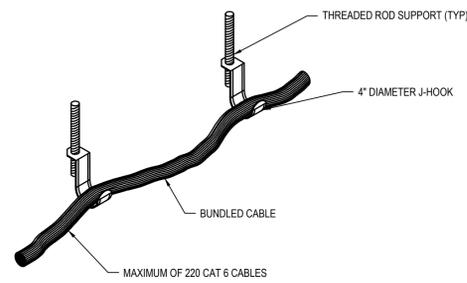


3 SECOND FLOOR IT ROOM 209 (MDF) RACK FRONT ELEVATION  
IT-301 SCALE: 1"=1'-0"

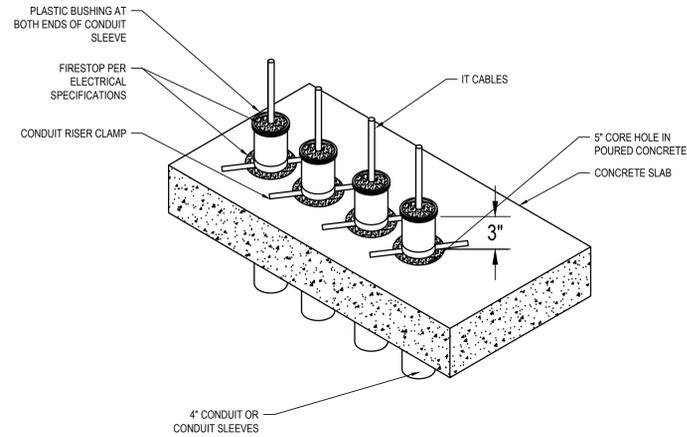


4 SECOND FLOOR IT ROOM 243 RACK FRONT ELEVATION  
IT-301 SCALE: 1"=1'-0"

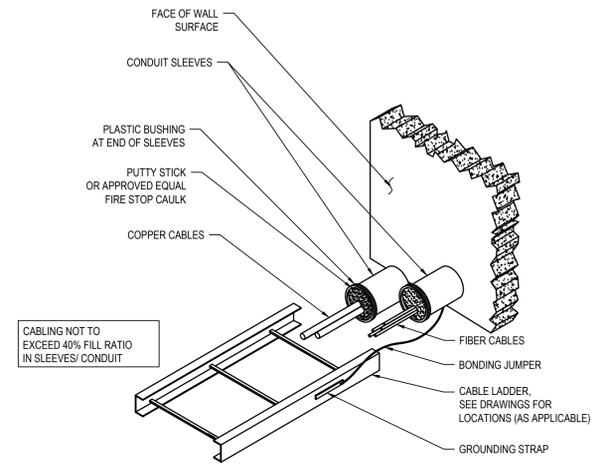
drawing title <b>SECOND FLOOR PART PLANS AND ELEVATIONS - IT</b>		<b>STATE OF CONNECTICUT</b> DEPARTMENT OF ADMINISTRATIVE SERVICES	
REVISIONS			
mark	date	description	
drawing prepared by <b>K</b>		date 09/12/2016	
project LITCHFIELD HALL IT INFRASTRUCTURE UPGRADES WESTERN CONNECTICUT STATE UNIVERSITY DANBURY, CONNECTICUT		scale AS NOTED	
CAD no. 16053-IT-301- PART PLANS AND ELEVATIONS.dwg		project no. BI-RD-291	drawing no. <b>IT-301</b>



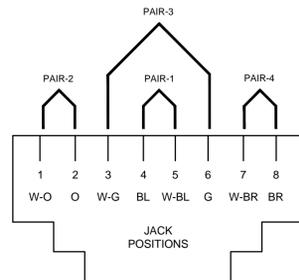
1 J-HOOK DETAIL  
IT-601 N.T.S.



2 CONDUIT SLEEVE SLAB PENETRATION FIRESTOP DETAIL  
IT-601 N.T.S.



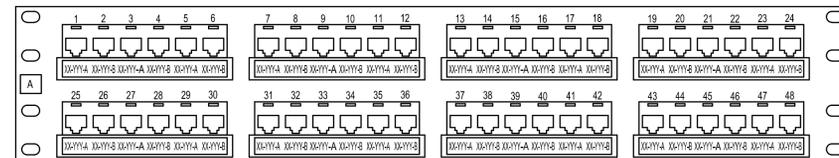
3 TYPICAL CONDUIT PASSTHRU DETAIL  
IT-601 N.T.S.



THIS ILLUSTRATION IS A FRONT VIEW OF THE CONNECTOR. THE COLORS INDICATED ARE ASSOCIATED WITH THE STATION DISTRIBUTION CABLE.

4 8 POSITION JACK PIN/PAIR ASSIGNMENTS (DESIGNATION T568B)  
IT-601 N.T.S.

**LABELING NOTES AND SCHEME**  
ALL PATCH PANELS SHALL BE LABELED WITH A CONSECUTIVE LETTER DESIGNATION THROUGHOUT EACH EQUIPMENT RACK.  
FLOOR# - UNIQUE SEQUENTIAL OUTLET NUMBER - JACK LETTER  
COORDINATE FINAL LABELING SCHEME REQUIREMENTS WITH WCSU

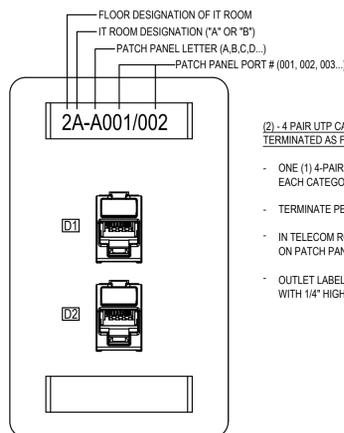


5 PATCH PANEL LABELING DETAIL  
IT-601 N.T.S.

CONDUIT CAPACITY CHART	
NOMINAL CATEGORY 6 CABLE DIAMETER = 0.25"	
CONDUIT DIA.	QUANTITY
3/4"	4
1"	7
1-1/4"	12
1-1/2"	17
2"	26
2-1/2"	39
3"	53
3-1/2"	70
4"	94

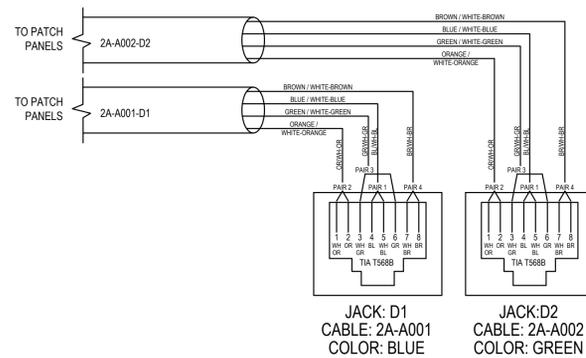
NOTE: CONDUIT CAPACITIES ARE BASED ON NEC STANDARD OF 40% MAXIMUM FILL.

6 CONDUIT SIZING TABLE  
IT-601 N.T.S.



- (2) - 4 PAIR UTP CATEGORY 6 CABLES TERMINATED AS FOLLOWS:
- ONE (1) 4-PAIR CATEGORY 6 UTP CABLE TO EACH CATEGORY 6 RJ-45 JACK 'D1' AND 'D2'.
  - TERMINATE PER TIA T568B WIRING STANDARD.
  - IN TELECOM ROOM TERMINATE CABLES ON PATCH PANELS.
  - OUTLET LABELS SHALL BE PRINTED WITH 1/4" HIGH BLACK TEXT

7 WALL-MOUNTED INFORMATION OUTLET  
IT-601 SCALE: N.T.S.



8 IT EQUIPMENT RACK GROUNDING  
IT-601 SCALE: N.T.S.

drawing title		STATE OF CONNECTICUT	
DETAILS - IT		DEPARTMENT OF ADMINISTRATIVE SERVICES	
REVISIONS			
mark	date	description	
drawing prepared by		date	
K		09/12/2016	
scale		N.T.S.	
project		drawn by	
LITCHFIELD HALL IT INFRASTRUCTURE UPGRADES		RS	
WESTERN CONNECTICUT STATE UNIVERSITY		approved by	
DANBURY, CONNECTICUT		ER	
drawing no.		IT-601	
CAD no.		project no.	
16053-IT-601-DETAILS.dwg		BI-RD-291	