

NC State University Design and Construction Guidelines

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[Designer shall incorporate this document into the specification in its entirety.]

1.0 Purpose

- A. The following guidelines apply to North Carolina State University's ("NC State") requirements specific to the needs of NC State. It is the goal of NC State to identify specific needs relevant to working on a public university campus that will help the Contractor gain more knowledge and be fully aware of NC State's expectations while working on campus.
- B. References include the following:
 1. NC State Transportation's Contractor Parking Policies:
<http://www2.acs.ncsu.edu/trans/parking/specialty.html>
 2. NC State University, Environmental Health and Public Safety, Fire Protection Department Hot Work Permit Procedures. Contractor shall access the following website to obtain hot work permits: <https://fls.epsi.ncsu.edu/forms/hot-work-permit-request/>

2.0 General Requirements

- A. The Owner's Representative - NC State will designate a Project Manager to act as the Owner's Representative in all matters pertaining to construction contracts. All official contacts, decisions, directions, problem resolution, coordination and other liaison activities required from NC State will be through the Project Manager. This requirement does not modify the responsibilities of the Designer as stated in the General Conditions of the Contract.
- B. Contractor, at its expense, shall conduct a background check for each of its employees, as well as for the employees of its subcontractors, who will perform any function or activity under this Agreement. NC State may withhold consent for any of Contractor's employees to be placed on a NC State assignment at its sole discretion.
- C. Behavior policy - All construction personnel shall be respectful of all members of the NC State community. Any incidents of disrespect, verbal abuse, threatening statements, unwelcome comments, unwelcome interaction or any form of harassment from any construction personnel toward any member of NC State community is strictly prohibited. Any such act shall constitute sufficient cause for NC State to remove any individual permanently from the project and all NC State property. In addition, any of the Contractor(s) project personnel who ignore or refuse to take action on any requirements of the contract documents or ignore or refuse to take immediate action to correct any endangerment to the health and safety of the public (as solely determined by NC State)

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shall be permanently removed from the project and NC State property. If in the sole determination of NC State it is in the best interest of the project and NC State to have any of the Contractor(s) personnel removed from the project, then the Contractor shall do so upon request by NC State. Such actions taken by NC State shall not constitute grounds for a delay claim. NC State will not be responsible for any delays caused to the project due to any individual being removed from the project by NC State.

D. Protection of Work, Property, and Public:

1. The single prime Contractor, Construction Manager at Risk or Project Expediter (on a multi prime project), henceforth referred to as "the Contractor," shall ensure that campus streets connecting to the project are protected from mud, sand, and stones/gravel. Streets and adjacent property sites shall be kept free from run-off, litter and/or debris in any form from the project site. Mud, litter and/or debris from the construction site that appears on adjacent property sites shall be removed immediately. All mud collected on vehicle tires shall be removed before leaving the construction area. Should any mud or debris from the project site collect on the streets, it shall be removed immediately to prevent any hazards to vehicular or pedestrian traffic as well as from entering the storm sewer system. In any event, all streets and property sites adjacent to the project site shall be cleaned of construction related debris, dust, litter and mud daily. The Contractor, in the preparation of bids, shall account for the daily cleaning of adjacent streets and property sites. The Contractor(s) is prohibited from discharging any waste products from concrete trucks or from concrete coring work, or any other unsuitable materials, fluids or other products on the site or into the storm sewer system. Should the Contractor fail to comply with these requirements, NC State reserves the right, with twenty-four (24) hours prior notice to the Contractor, to clean and or remove mud, trash, litter, debris or any unauthorized discharge from the project site and/or the adjacent streets or properties. In such case, the cost of the cleaning and/or removal or mobilization for cleaning and/or removal shall be deducted from the Contractor's contract.
2. The Contractor shall repair any damage (including but not limited to: scratches, cuts, dings, holes, track marks, etc.) of any kind made to existing hardscapes (asphalt/concrete roadway and drives, curb and gutter, brick sidewalks, etc.) by heavy equipment or other causes. Repairs shall consist of a complete, full depth removal and replacement of the affected asphalt, concrete or brick hardscapes at the Contractor's expense, or as otherwise determined by the Owner, to include the full width of the road, parking lot, walk or curb that is affected. The Contractor is strongly encouraged to be mindful of this while working around and off-loading equipment in areas of new construction adjacent to existing areas, which are not in the original scope of work to be renovated or repaved. In

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general, equipment shall be off-loaded inside of assigned staging areas, and the Contractor shall take protective measures as needed, including protective plywood or other means to prevent damage of the hardscape surface. The slightest damage will result in full hardscape replacement at the Contractor's expense.

3. Blasting on NC State property is prohibited.
4. Each Contractor doing excavation work is responsible for locating all existing underground utilities prior to commencing excavation. The Contractor shall be responsible for the associated cost of any utility interruption and repair due to his excavation if utility location was not requested, location procedures performed and followed prior to commencing excavation. The Contractor shall immediately notify NC State and restore the service of any utility disrupted due to excavation or any Contractor action whatever the circumstance. NC State reserves the right to immediately restore the service of any utility disrupted due to actions of the Contractor and deduct the cost of such restoration from the Contractor's contract.
5. For emergency situations during construction, the Contractor shall furnish NC State with the names, pager numbers, and telephone numbers (day and night) of the Contractor's project manager and superintendent prior to beginning work. The numbers shall remain current or be updated as required for the duration of the project. The Contractor shall contact NC State via cell phone immediately in the event of an emergency. NC State will only provide security, as it deems prudent and necessary for its own protection. The Contractor shall be responsible for the security and safety of the project within the project limits. NC State must approve any "watchman" service instituted by the Contractor.
6. NC State will conduct normal operations during the duration of the project. The Contractor shall coordinate with NC State to minimize any disruptions to the functions of NC State.

E. Working Hours - The Contractor may establish a work schedule of his own choosing. The Contractor shall submit to NC State and to the Designer his regular daily work schedule and shall notify NC State in writing one week in advance of any deviations from the schedule. There are no restrictions regarding work hours. NC State reserves the right to limit the Contractor's activities when they conflict with NC State operations. These operations include but are not limited to the following: examination periods (typically for two weeks in December and two weeks in May), graduation (typically for one weekend in December and May), athletic events, and student move in/move out days. During these times, the Contractor may be required to cease all construction activities, limit activities to on-site only, modify working hours or restrict noise-making activities as determined by NC State.

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F. Contractor Daily Reports - The Contractor shall keep construction daily reports and provide, at NC State's request or on a minimum weekly basis, copies of these daily reports. The Contractor shall either use the company's standard daily report or use a template provided by NC State. The daily report shall at a minimum include the following information:

1. Project name, SCO Project ID#, NC State Project #
2. Report #
3. Date and time report was generated
4. Weather data: overhead conditions, precipitation (if so, how much), temperature (high and low), impact on progress
5. Sediment and erosion control
6. Work performed (include all major trades)
7. Number of workers on site
8. Major equipment deliveries
9. Major equipment working on site
10. Difficulties encountered that may cause delay
11. Days of no work and reason

G. Meetings - The contractor shall at a minimum conduct weekly coordination meeting to review construction progress and any issues that need to be resolved. Contractor shall invite NC State and Designer as well as any required subcontractors.

H. Inspection of the work - NC State will conduct the following inspections, as applicable, which shall be included in the construction schedule: in-wall inspections, above ceiling inspections, generator test, fire pump test, fire sprinkler main drain tests, pre-final inspections, 100% test of the fire detection and alarm system, third-party materials testing/special inspections/commissioning and a final inspection for project acceptance. Any inspections that are not satisfactory shall be repeated at no cost to NC State and shall not be cause for a time extension. All inspections will be conducted by NC State at the same time as the Designer's inspection and a punch list generated. The Contractor shall give the Designer and NC State a minimum of fourteen (14) calendar days prior notice that the systems have been verified by the Contractor to be complete, fully functional and ready for inspection. The following general guidelines apply to the above ceiling inspections:

1. The systems must be complete, including but not limited to controls, insulation, labeling, tagging, fireproofing, fire stopping, wiring, light fixtures installed, and all piping in place.

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2. Ceiling grid may be installed as required, framing for hard ceilings shall be in place, and access door locations shall be framed and noted.

Under no circumstance shall any ceiling or wall area be covered prior to the above ceiling inspection. All punch list items generated from the inspections shall be completed by the Contractor and verified by the Designer and NC State.

Any re-inspection costs, including but not limited to Designer, NC State, State Construction Office (SCO) or third party personnel, that result from punch list items not being 100% complete shall be at the expense of the Contractor.

I. Use of the Premises - Parking is extremely limited at NC State. Parking for personal vehicles on campus is not provided. Contractors must limit parking of company vehicles and storage of materials to within the limits of the construction site and staging area. The Contractor is required to follow NC State Transportation's Contractor Parking Policies (see web link on page one of this document).

J. Utilities - It is imperative that all campus utilities and all other campus services are maintained at all times except for scheduled interruptions. Required utility interruptions shall be scheduled with and requested through NC State at least fourteen (14) days in advance for minor outages and thirty (30) days in advance for major outages. NC State is the sole determiner of the utility outage being major or minor. Major outages include but are not limited to those that affect an entire floor of a building, all of a building, all or parts of several buildings, all or parts of an area, and any high voltage outage. No utility interruption, regardless of the advance notice given, shall be undertaken without expressed, specific approval from NC State. If requested by NC State, utility outages shall be performed after hours and/or at night, or over the weekend, or during holidays. No extra payment will be made for such work. NC State personnel will perform certain activities in connection with utility outages such as operating existing electrical switches, turning existing water and steam valves, placing existing building systems back in operation, operating existing fire alarm systems, etc. NC State will bear the expense of the work of their personnel. When the Contractor requires an additional or extra outage to complete their work because of a shortage of or improper materials, shortage of labor, poor coordination, failure to finish the work during the outage scheduled length of time, the Contractor will pay all expenses incurred for NC State's services for an additional outage(s). No service disruptions shall take place until barricades (if applicable) and signs are in place to notify and/or protect the public. Barricades must be maintained at all times and signs shall be neat and legible, hand-made signs are not acceptable. Signs for utility outage notice shall be written and placed as directed by NC State seven (7) workdays prior to the outage. NC State may determine the utility service cannot be interrupted for the length of time or frequency requested by the Contractor. In such case the Contractor shall include in his bid provisions for temporary utility services for the duration of the outage at no cost to NC State.

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K. Survey of New and Existing Sub-surface Utilities - Perform field location surveys of new utilities installed as well as existing utilities uncovered during the construction phase. Conventional survey standards are to be utilized during the collection of field data. All work shall be performed by qualified personnel under the supervision of a Professional Land Surveyor. Accuracy Standards: horizontal and vertical location shall be +/- 0.25'. Survey (NAD83-North Carolina State Plane Coordinates) shall tie to NC State's horizontal & vertical control monuments.

1. Utility Drawing Set (Hard Copy)

- a) Cover Sheet - All projects require a cover sheet with the following information -
 - (1) NC State Project Name
 - (2) NC State Project Number
 - (3) NC State Building Name (s)
 - (4) NC State Building Number or Utility Zone Number (s)
 - (5) Project Phase (i.e. Schematic Design, Design Development, 100% Bid Documents, or Record Set)
 - (6) Sheet Name with discipline letter preceding sheet number (i.e. A100 for an Architectural Plan).
 - (7) Drawing Index
 - (8) Site Map
 - (9) For interior renovations, a hatched key plan indicating the extent of work
- b) Drawing Sizes – sheet sizes shall not exceed 36" x 48" and shall not be less than 24" x 36" in size.
- c) Include licensing seal and certification on 100% bid documents and record set documents.

2. Utility Drawing Set (Electronic Copy)

- a) Format shall be .pdf.
- b) Submission is required at each project phase.
- c) File naming shall be as follows:
 - (1) Typical file naming shall be as follows -
bldg #_ncsu project number_date_phase.pdf or
utility zone #_ncsu project number_date_phase.pdf
 - (2) Example: 799Z_201300001_10-31-12_sd.pdf

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(3) For projects with multiple buildings or utility zones, the lowest number shall be used in file name.

3. Electronic Source CADD Files (Record Set and first Construction Document Submittal)

- a) Electronic files of all drawings shall include source drawings, font libraries, custom line styles/codes, plot style tables and other digital CADD related information.
- b) The files shall be in AutoCAD .dwg format; the AutoCAD version shall be within the last 2 years of the current release.
- c) Drawings shall be drawn at a scale of 1 to 1 in model space. Interior spaces shall be in Architectural inches. Exterior space shall be in US survey foot.
- d) For exterior projects use NAD 83 North Carolina State plane coordinates.
- e) All external references shall be bound as inserts or inserted directly as a block into the drawing. X-refs of any kind are not acceptable.
- f) Remove licensing seals from drawing files.
- g) Drawings shall be purged and audited.
- h) Submission shall not include backup .bak files or .zip files.
- i) Site, Civil, and Survey drawings shall use the NC State mapping drawing template, which includes NC State standard layers, linetypes and block symbols. The current version can be downloaded at www.ncsu.edu/facilities/con_guidelines/NCSU_CIV-SRV_TEMPLATE.dwg

4. Utility Submission

- a) Hard Copy - The Drawing Set shall be submitted on bond paper.
- b) Electronic Files for the Record Drawing Set and Source CADD Files shall be accompanied by a transmittal with a listing of the included documents and the following information:
 - (1) NC State Project Number
 - (2) NC State Project Name
 - (3) NC State Building Number(s)
 - (4) NC State Building Name (s)
 - (5) NC State Project Manager's Name and Phone Number
 - (6) Submitting Professional's Name and Address
- c) Electronic Files shall be submitted on a CD or DVD
 - (1) A .pdf file of the transmittal shall be included on each disk.

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L. The following outline lists the utilities to be located and the data to be collected. Photographs shall be at a minimum resolution of 2200 x 1700. Digital photographs can be submitted in TIFF, JPG, or RAW file formats. File naming shall be all lower case text. File naming shall be as follows: bldg#_ncsu project number_util_photo#.file extention. For example: 135_20130001_util_1.jpg

1. Steam Tunnel and Lines
 - a) Location and elevations of the tunnel slab and top of tunnel centerlines.
 - b) Location and size of steam and condensation pipes in the tunnel, including changes in directions, expansion loops and anchors.
 - c) Top of pipe of any direct buried steam and condensation pipes, including changes in directions, expansion loops and anchors.
 - d) List the construction material for the tunnels.
 - e) Provide digital photographs of the tunnel, piping and expansions areas.
2. Water Lines - (Domestic, Fire Main, Chilled, Hot Water, & Reuse Waterlines)
 - a) Locations, size and elevations at the top of installed water lines, including changes in direction.
 - b) Locations of valves and a valve type designation, meters, fire department connections, post indicator valves, hydrants, reducers, manholes, and backflow device.
 - c) Provide digital photographs of bends and valves.
3. Electric and Communication Duct Banks and Direct Buried Conduit
 - a) Location and elevations of the duct bank top and bottom.
 - b) Location and elevations of conduit runs in the duct bank.
 - c) Location and elevations of any direct buried conduit or concrete duct bank.
 - d) Location and elevations of manhole rims, transformers, pedestals, switches, poles, overhead lines, junction boxes, panels, generators, and meter boxes.
 - e) Provide digital photographs of the tunnel and conduit configuration.
4. Gas
 - a) Location and elevations of top of pipe and any change in direction.
 - b) Location and elevations of meters, pressure reducing stations, test stations, generators, and valves.
5. Storm and Sanitary Sewer
 - a) Provide invert elevations for incoming and outgoing piping at manholes.
 - b) Provide top elevation of manhole cover.

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- c) Note if manhole rims are in the center of the structure or not. Measure the offset, pipe sizes, material types and the direction of the flow.
 - d) Provide digital photographs of structures.
- 6. Existing Utilities
 - a) Locate and provide elevations consistent with new utility requirements of any existing utilities exposed during excavation of trenches for new utilities.
 - b) Provide digital photographs of the crossing or conflict.
- 7. Deliverables for Surveys
 - a) The subsurface location data and platting shall be continuous throughout the project.
 - b) All data and plats are due to NC State within two-weeks of the backfilling of utilities or completion of the associated construction task.
- M. Traffic Movement and Interruptions - Road and sidewalk blockages shall be scheduled fourteen (14) days in advance and made only after NC State has approved them. Appropriate detours shall be planned, subject to approval by NC State, giving consideration to the handicapped access. No excavations shall take place prior to placing proper barricades, lighting, and other devices as shall be required. The Contractor shall install warning signs, barricades and detour information signs to maintain traffic flow as directed by NC State. If required, flagmen shall direct traffic around the construction area or detour area. Contractors are reminded of the presence on campus of handicapped students, staff and faculty. All barricades, temporary walkways, excavations, and stockpiled materials shall be placed and/or constructed in such a manner as to accommodate, adequately warn, and protect this segment of the campus population. The Contractor shall make requests for approval for any street, alley, driveway or any access way to be closed at least ten (10) work days prior to the date for the desired closing. The Contractor shall close no street, alley, driveway or access-way without prior approval by NC State. Pedestrian and vehicle traffic way-finding around the construction limits must be maintained in a clean and safe condition at all times.
- N. Fire Alarm Shutdowns - When requesting fire alarm shutdowns to support construction activities, the contractor shall provide advanced notice as determined by the NC State Project Manager. The contractor shall also be required to reimburse NC State for all costs associated with the fire alarm shutdown as follows:
 - 1. During normal business hours (Monday – Friday, 7:00 AM – 5:00 PM): \$75.00 per disconnect and \$75.00 per reconnect for a total of \$150.00.
 - 2. After normal working hours (Monday – Friday, 5:01 PM – 6:59 AM; Saturday – Sunday): \$150.00 per disconnect and \$150.00 per reconnect for a total of \$300.00.

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3. If at any time the fire alarm system is not in operation after normal working hours then the contractor shall be required to employ a Fire Watch for the unprotected portion of the building, using NC State Fire Marshal's approved Fire Watch company (hourly rates vary but should not exceed \$35.00 per hour.)
- O. Hot Work Permits - When the Contractor is performing work that produces heat, flame, or sparks on or in an existing building or other structure the Contractor is required to obtain a "hot work" permit from NC State Environmental Health and Public Safety, Fire Protection Department. The department's requirements for the hot work program and permit can be found at the web link on the first page of this document. The EH&PS Hot Work Policy (rev. May 1, 2022) is appended to the end of this section.
- P. Cleanliness and Site Maintenance - The Contractor(s) shall be responsible for keeping the project limits area, the project site, and the project itself clean and free of accumulated construction debris and trash. To that extent, the Contractor(s) shall be responsible for cleaning their work areas weekly at a minimum and the proper disposal of their construction debris and trash. The construction site and staging areas shall be cleaned as previously noted; however, should trash, litter or debris from the project site migrate to any adjacent campus areas it shall be removed immediately. Grass in the construction site shall be mowed as often as required to maintain a neat appearance or as requested by NC State but in no case less than once per month. Should the Contractor(s), in the sole judgment of NC State fail to comply with these requirements, then NC State reserves the right to proceed with cleaning within the project limits area, immediate project site, the interior of the project or, if applicable, the adjacent areas to the project as it deems necessary. The cost of the cleaning and/or the mobilization cost of cleaning will be deducted from the Contractor(s) contract.
- Q. Storage of construction materials and equipment - Storage of construction materials and equipment shall be limited to the staging area. Should the Contractor fail to remove any material stored or equipment outside the staging area within twenty-four (24) hours of notification received from NC State, NC State shall have the right to remove and dispose of such materials from the campus. NC State will deduct the cost of such removal and disposal from the Contractor(s) contract. The offending Contractor(s) shall be responsible for any delay to the project resulting from NC State having to remove and dispose of such materials or equipment.
- R. Construction site - A construction fence shall be installed around the perimeter of the project limits. The fence shall be constructed of heavy-duty chain link material, have a minimum height of six feet and shall have a continuous top tubular rail. Swing gates shall be included at every access to the enclosed area. The fence shall have an integral visual barrier or shall have shading type material applied and maintained for the duration of the

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project. Locks for the gates shall be interlocked with a padlock provided by NC State in order to allow access by NC State or other emergency personnel in case of an emergency.

S. Inspection and Audit - Contractor's "records" shall upon reasonable notice be open to inspection and subject to audit and/or reproduction during normal business working hours. An NC State representative or an outside representative engaged by NC State may perform such audits. NC State or its designee may conduct such audits or inspections throughout the term of this contract and for a period of three years after final payment or longer if required by law.

1. Contractor's records as referred to in this contract shall include any and all information, materials and data of every kind and character, including without limitation, records, books, documents, subscriptions, recordings, agreements, purchase orders, leases, contracts, commitments, arrangements, notes, daily diaries, superintendent reports, drawings, receipts, vouchers and memoranda, and any and all other agreements, sources of information and matters that may in NC State's judgment have any bearing on or pertain to any matters, rights, duties or obligations under or covered by any Contract Document. Such records shall include (hard copy, as well as computer readable data if it can be made available): written policies and procedures; time sheets; payroll registers; payroll records; cancelled payroll checks; subcontract files (including proposals of successful and unsuccessful bidders, bid recaps, etc.); original estimates; estimating work sheets; correspondence; change order files (including documentation covering negotiated settlements); back charge logs and supporting documentation; invoices and related payment documentation; general ledger entries detailing cash and trade discounts earned; insurance rebates and dividends; and any other Contractor records which may have a bearing on matters of interest to NC State in connection with the Contractor's dealings with NC State (all foregoing hereinafter referred to as "records") to the extent necessary to adequately permit evaluation and verification of:
 - a) Contractor compliance with contract requirements,
 - b) Compliance with NC State's business ethics policies, and
 - c) Compliance with provisions for pricing change orders, invoices or claims submitted by the Contractor or any of his payees.

T. Changes in the Work - Overhead shall also include all general conditions of the contract and all general requirements such as project management, scheduling, home office expense, engineering and layout, reproduction expenses, shop drawing processing and coordination, supervision, coordination, small tools, all vehicle expenses, temporary facilities, safety provisions, as built drawings, estimating, and general overhead.

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1. The change order cost break down shall include: labor (number of hours and \$/hr) and material (quantity and \$/unit), including such breakdowns for work performed by the general contractor and all subcontractors. Unit prices shall only be allowed as stipulated in Article 19 of the contract General Conditions. Cost extensions shall be clearly shown for the labor and material prior to any mark-ups. The cost extensions shall be added into a labor and material subtotal. The labor shall then show a percentage for labor burden, while the materials shall show the applicable sales tax. These subtotals shall then be shown as a total for labor and material costs. The labor and material cost shall then show the allowed mark-up, and a final total. Subcontractor quotes shall be presented in the same format on the subcontractor's letterhead. Each item totaled on the Contractor's summary sheet shall be separated in the back up documentation by a colored sheet of paper. For change orders that delete any part of the work within the change order and/or contain deductive costs, the back up shall show the original material and labor for the deleted work or costs. If the change order contains both adds and deducts for the same type of work then the material unit and labor unit costs shown on the back up for the deleted work and the added work shall be the same and the net difference shown. Deductive change orders shall show the proper reduction in OH&P and the bond. The Contractor shall also provide HUB utilization information on NC State's Hub Utilization form. Failure by the Contractor to provide the information requested in this paragraph shall result in rejection of the change order by the designer and a request for re-submittal. Delay in the processing of the change order due to lack of proper submittal by the Contractor in accordance with this paragraph, or due to errors in the change order calculations shall not constitute grounds for a time extension or basis for a claim.
2. For all proposed change orders, the procedure will be for the designer to request proposals for the change order work in writing. The Contractor will provide such proposal and supporting data in suitable format and as required in General Condition Article 19 – Changes in the Work, paragraph “c”, “d”, and “e”. The designer shall verify correctness and determine that the Contractor's proposed costs are equitable. After receipt of the Contractor's proposal and if the proposal is correct and it is agreed to by the designer and NC State that the cost is equitable then NC State shall prepare a change order and forward it to the Contractor for his signature. If the change order proposal is incorrect, or the cost has not been agreed upon by the designer and NC State then the designer shall notify the Contractor that the proposal is rejected and the proposal shall be re-submitted. If the proposal is rejected because the cost are deemed not to be equitable then the contracting parties shall negotiate and agree upon the equitable value of the change and the proposal shall be resubmitted with costs

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determined under General Condition Article 19 – Changes in the Work Paragraph “e”.

3. Once proposed change orders have been reviewed and approved by the Contractor, Designer and NC State, the change order shall be processed for signatures electronically through the State Construction Office (SCO) web-based Interscope program. Directions for using Interscope shall be provided at the Pre-construction Conference.
4. If for whatever reason Interscope cannot be used for processing change orders, change orders shall be processed in hard copy format in accordance with General Condition Article 19 – Changes in the Work. The change order shall contain a brief description of the work on the 1st page of the SCO form and again on the second sheet of the form under “DESCRIPTION OF CHANGE”. On the second sheet there shall also be a brief description of the reason for the change along with a cause code listed. Each item totaled on the Contractor’s summary sheet shall be separated in the back up documentation by a colored sheet of paper. After receipt of the change order executed by the Contractor, the designer shall, certify the change order by his signature and forward the change order and all supporting data to NC State for signature. NC State shall execute the change order and forward to the State Construction Office for final approval. The State Construction Office shall review and upon approval execute the change order and keep one copy. The remaining copies are sent to the designer for distribution to NC State (two copies with original signatures) and to the Contractor (two copies). The Contractor shall forward a copy to his Surety. In the case of an emergency or extenuating circumstances, the approval of the changes may be obtained verbally by telephone or field order approved by all parties.
5. The Contractor shall also provide HUB utilization information on NC State’s Hub Utilization form.
6. Failure by the Contractor to provide the information requested in this paragraph shall result in rejection of the change order by the designer and a request for re-submittal. Delay in the processing of the change order due to lack of proper submittal by the Contractor in accordance with this paragraph or due to errors in the change order calculations shall not constitute grounds for a time extension or basis for a claim.

U. A time extension due to Weather - A rain day is defined as any day that rain exceeds one tenth of one inch (0.1"). The Contractor may only be entitled to extension of the contract period for the number of rain days that exceed the normal number of rain days for any given month. For the purpose of determining extent of delay attributable to unusual weather, a determination shall be made by comparing the weather for the contract period with the preceding five (5) year climatic range average during the same time interval

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based on statistics kept at NC State's Marine, Earth and Atmospheric Sciences department located on NC State's campus and on daily weather logs kept on the jobsite by the Contractor, reflecting the effect of the weather on progress of the work and initiated by the designer's representative. Time extensions for weather delays do not entitle the Contractor to "extended overhead" recovery and are in all other ways non-compensable.

Notwithstanding the immediately preceding paragraph, not all rain days above the normal number of rain days will warrant a contract time extension. Justification for the request for rain related contract time extensions must also be based on the effect of the rain on critical path work activity in progress during the period of the request and additionally be predicated on the Contractor's diligent prosecution of the work. No additional rain days shall be granted for building projects after the building has been "dried-in" as determined by the designer. The contract time extension request must incorporate work logs kept at the jobsite by the project superintendent showing the effect of the weather on the progress of the critical path work and the critical path schedule, both initiated by the designer's project representative.

Requests for contract time extensions based on rain days must be received by the designer on or before the 20th day of the month immediately following the month in which the rain occurred. The request must include all required documentation. All parties to this contract agree that the Contractor has no right to claim a contract time extension if the request is not received by the designer in strict accordance with the procedure set forth in this paragraph.

For other types of weather delays, the Contractor is granted one (1) day of contract extension for each day NC State is closed due to weather.

V. Final Inspection and Acceptance

1. In addition to all other contract inspection requirements, the following items shall be completed prior to scheduling a final inspection:
 - a) Training of NC State's Facilities Operations personnel shall be conducted with approved Operation and Maintenance Manuals (O&M's) provided at the training sessions.
 - b) Deliver to NC State one copy of all approved shop drawings (submittals) for the project.
 - c) Stairs: prior to final inspection, the Contractor shall submit to the Designer and NC State for review and approval as-built survey drawings of each set of stairs (exterior and interior) constructed as part of this contract. As-built survey drawings shall include dimensions of each riser and each tread and shall bear the seal of a licensed surveyor registered in

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the State of North Carolina. The Designer shall determine that the stairs are in full compliance with the current State of North Carolina Building Code, and if not in compliance, the Contractor, at his expense, shall make all required corrections, resurvey and resubmit as-builts for review and approval by the Designer and NC State.

2. The Contractor shall complete the following list, indicating the date of completion, prior to scheduling a final inspection and recommending acceptance of the project to NCSU. Items 1 and 2 must be completed prior to "substantial completion" as defined in Supplementary General Conditions 3.0 Article 23 "Time of completion - the Contractor shall coordinate with NC State the completion of some items on the list as required:

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Project Acceptance Checklist (also to be used for Beneficial Occupancy when applicable)

Project Name:

Code: Item:
accordingly

Note: All items must be checked off with dates & initialed

I. Pre-final Inspections		Initial & Date
A. Critical Items Check List:		
1.	NCSU Environmental Health Safety Department certification of fume hoods	
2.	NCSU Fire Marshall's inspection of life safety systems (FAS, Sprinkler System, Emergency Generator, Fire Pumps etc)	
3.	Fire Extinguishers installed or delivered to NC State	
4.	Roof & window water tests (when required)	
5.	Date to coordinate NCSU Fac Ops Lock Shop to install locks and test in conjunction with Life Safety	
6.	State Construction Office electrical inspection(s) complete	
7.	Fire alarm inspection and certification by installer and design engineer complete	
8.	Fire alarm inspected & approved by NCSU Electronics Shop & Fire Marshall	
9.	Elevator inspection by Dept. of Labor, approval to operate the elevator obtained	
10.	Demonstration of operation of fire pumps to NCSU Fire Marshall	
11.	Operation of emergency and stand by power circuits verified	
12.	Operation of emergency generator verified	
13.	Dept. of Health water test results and approvals delivered to designer	
14.	Dept. of Labor pressure vessel inspections and certificates issued and displayed.	
15.	Endorsement of surety for beneficial occupancy (if applicable)	
16.	Endorsement of Contractor's insurance company for beneficial occupancy (if applicable)	
17.	Approval of SCO for beneficial occupancy (if applicable)	
18.	Date for insurance transfers established	
II. Training and instruction of Facility Operations Personnel on Equipment		
A. Record of Instruction Sessions:		
Plumbing		
HVAC/ Controls		
Electrical		
Fire Alarm		
B. NC State O & M Manuals and pressure vessels info delivered to NC State		
III. Pre-Final Inspection		
A. Pre-final Punch list Certified as Complete by the Designer:		
General		
Mechanical		
Plumbing		
Electrical (including fire alarm system)		
IV. Final Inspections with SCO		
A. Date of Final Acceptance Inspection with SCO		
1.	Date SCO punch list items complete	

All items complete and verified by the Designer

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Signed _____ Date: _____

W. Request for Payment – In addition to General Conditions Article 31 – Requests for Payments, Contractor payment applications shall have the following information clearly shown on the front page: NC State project number, Code & Item, State Construction Office Project Identification Number. No payment may be made for stored materials that are not stored within the project limits or on property owned by the State of North Carolina. Exception may be considered for material stored in a third-party, bonded warehouse with all appropriate documentation provided to NC State. Designer must verify that material is stored in a bonded warehouse and that the stored material is identified as NC State property. No payment shall be certified/approved by the Designer and forwarded to NC State for payment if not accompanied by the following:

1. A letter from the surety company consenting to the progress payment in the amount requested. The amount of the payment shall be shown on the letter.
2. A completed sales tax statement and form.
3. An updated CPM schedule.
4. MBE Appendix "E" Form with accurate subcontract amounts and amounts paid.
5. NC State project code, item number, project number and the State Construction Office ID number on the 1st sheet.
6. Pay applications without the information listed shown shall be considered incomplete and cannot be approved.
7. "Schedule of values" shall include payment line items for various commissioning activities.

No final payment shall be approved by the Designer and/or forwarded to NC State if not accompanied by the following:

8. Certificate of Compliance signed by the Designer of Record.
9. Certificate of Completion signed by the Designer of Record.
10. Completed Tax Statement and Form.
11. Consent of Surety for Final Payment.
12. Contractor's Affidavit of Payment of Debts and Claims.
13. Contractor's Affidavit for Release of Liens.
14. Contractor's General Guarantee.
15. Contractor's statement of any special or extended warranties.
16. MBE Appendix "E" Form with accurate subcontract amounts and amounts paid.

* NC State shall have 30 days from the time that correct and complete payment requests are received to pay the Contractor.

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Office of Finance and Administration
Emergency Preparedness and Strategic Initiatives
Fire and Life Safety
<https://epsi.ncsu.edu/fire-and-life-safety/>

Campus Box 7220
Raleigh, NC 27695-7220
P: 919.515.2568
firesafetyhelp@ncsu.edu

Hot Work Permit Program

May 1, 2022

Hot Work

Hot work is defined by the 2018 NC Building Code: Fire Prevention Code as, operations including cutting welding, Thermite welding, brazing, soldering, grinding, thermal spraying, thawing pipe, installation of torch-applied roof systems or other similar activities.

Hot Work Area

The area exposed to sparks, hot slag, radiant heat, or convective heat as a result of the hot work.

Hot Work Equipment

Electric, or gas welding, or cutting equipment used for the hot work.

Hot Work Permits

Permits shall be issued by a responsible person at the facility under the hot work program permitting welding or other hot work to be done in locations referred to in section 3501.3 and pre-permitted locations by the fire code official.

(3501.3: Restricted areas. Hot work shall only be conducted in areas designed or authorized for that purpose by the personnel responsible for the Hot Work Program. Hot work shall **NOT** be conducted in the following areas unless approval has been obtained from the fire code official (NCSU Fire &Life Safety):

1. Areas where an existing sprinkler system have been impaired.
2. Areas where there exists the potential of an explosive atmosphere, such as locations where flammable gases, liquids, or vapors are present.
3. Areas where readily ignited materials, such as storage of large quantities of bulk sulfur, baled paper, cotton, lint, dust, or loose combustible materials.
4. On board ships at dock or ships under construction or repair.
5. At other locations specified by the fire code official (NCSU F&LS).

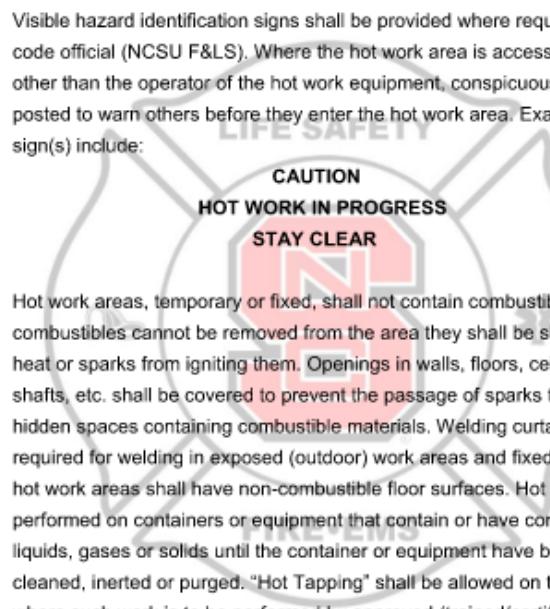
Hot work permits, issued by an approved responsible person under the Hot Work Program, shall be available for review by the fire code official (NCSU F&LS) at the time the work is conducted and for 48 hours after the work is completed. A permit for hot work operations shall not be issued unless the individuals in charge

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of performing such operations are capable of performing the hot work safely. The individual responsible for the hot work area, temporary or fixed, shall maintain a log of pre-work checks in accordance with NCFC Section 3504.3.1. The reports shall be maintained on the premises for not less than 48 hours after the work is completed.

Visible hazard identification signs shall be provided where required by the fire code official (NCSU F&LS). Where the hot work area is accessible to persons other than the operator of the hot work equipment, conspicuous signs shall be posted to warn others before they enter the hot work area. Examples of the sign(s) include:



CAUTION
HOT WORK IN PROGRESS
STAY CLEAR

Hot work areas, temporary or fixed, shall not contain combustibles. If combustibles cannot be removed from the area they shall be shielded to prevent heat or sparks from igniting them. Openings in walls, floors, ceilings, ducts, shafts, etc. shall be covered to prevent the passage of sparks to adjacent or hidden spaces containing combustible materials. Welding curtains shall be required for welding in exposed (outdoor) work areas and fixed work areas. Fixed hot work areas shall have non-combustible floor surfaces. Hot work shall **NOT** be performed on containers or equipment that contain or have contained flammable liquids, gases or solids until the container or equipment have been thoroughly cleaned, inerted or purged. "Hot Tapping" shall be allowed on tanks or pipe lines where such work is to be performed by approved (trained/certified) personnel. Automatic sprinkler protection shall not be impaired while hot work is being performed. Non-combustible barriers shall be in place for hot work near active sprinkler heads and piping. The University Fire Marshal for NC State EH&S shall approve hot work in areas where fire sprinklers are impaired or non-existent. A dedicated fire watch shall be established by a responsible person trained in the use of portable fire extinguishers during hot work. Not less than one portable extinguisher with a minimum rating of 2-A 20-B:C shall be readily accessible within 30 feet of the hot work area. Extinguishers may **NOT** be removed from mounted locations in NC State buildings for standby use during hot work. Before hot work is permitted and not less than once per day while the permit is active the hot work area shall be inspected by the person responsible for authorizing the hot work operations (NCSU F&LS) to guarantee the area remains safe for hot

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work. A pre-work hot work area check shall be conducted prior to the hot work starting to ensure that all equipment in use is safe, hazards are recognized and protected (or removed), and proper signage or other protective measures are in place. The following shall be determined in the pre-work check:

1. Hot work equipment to be used shall be in satisfactory condition and in good repair.
2. Hot work site is clear of combustibles or combustibles are protected.
3. Exposed construction is of non-combustible materials or protected if combustibles are present.
4. Openings are protected.
5. Floors are clear.
6. No exposed combustibles are on the opposite side of partitions, walls, floors, or ceilings affected by the hot work.
7. A fire watch is in place.
8. Approved actions have been taken to prevent accidental activation of suppression or detection systems.
9. Fire extinguisher(s) are operable and available.

Hot work permits can be obtained the day of the hot work commencing by contacting the NC State Fire & Life Safety Office at 919-515-2568, alternatively an individual may call 919-515-3000 (NC State Univ. Police) and request a hot work permit response from the Fire & Life Safety Office. A representative from the office will report to the location requested as soon as possible to issue the hot work permit. During the issuance of the permit the hot work area will be established, the equipment will be inspected, and the work to be completed will be reviewed. Hot Work permits will be issued for up to 72 hours for hot work not involving welding in temporary work areas. Welding work in a temporary hot work area will be permitted on a daily basis. For extended operations beyond 72 hours, a fixed hot work area can be established and the permit issued for a longer period of time. Extended hot work operations will require a daily check-in with the Fire & Life Safety Office to confirm continued work and site conditions. If a Fire Alarm Interruption is desired to minimize the risk of activating the fire detection system there is a 3-day notice required by NC State University Facilities Operations/Energy Systems. The NC State Project Manager will have to pursue the Fire Alarm Interruption before the work can be scheduled or the Hot Work Permit requested. Fire Alarm devices will still have to be protected during the hot work to prevent contamination of the devices. Protective measures must be removed daily when the work period ends for the day and there is not a fire watch in place. Hot work requiring a permit over a weekend or during a University

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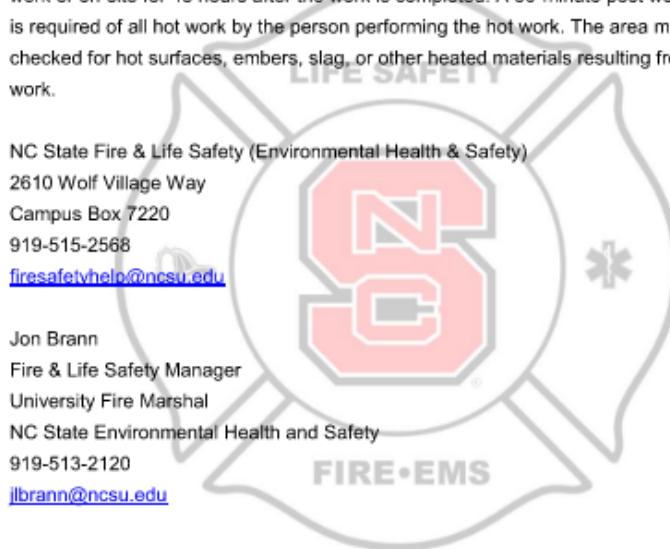
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closure needs to be planned for, approved, and permitted before the close of business on the last day prior to the weekend or closure. An after-hours hot work permit request will result in a 2-hour minimum charge to the project from the Fire & Life Safety Office (\$42/hr.).

The issued hot work permit must be conspicuously posted in the space where the hot work is being performed. The permit must be maintained by the person performing the hot work or on-site for 48 hours after the work is completed. A 30-minute post work inspection is required of all hot work by the person performing the hot work. The area must be checked for hot surfaces, embers, slag, or other heated materials resulting from the hot work.

NC State Fire & Life Safety (Environmental Health & Safety)
2610 Wolf Village Way
Campus Box 7220
919-515-2568
firesafetyhelp@ncsu.edu

Jon Brann
Fire & Life Safety Manager
University Fire Marshal
NC State Environmental Health and Safety
919-513-2120
jbrann@ncsu.edu



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		HOT WORK PERMIT				Fire & Life Safety Office 919-515-2568 University Police 919-515-3000 EMERGENCY: DIAL 911		
Building:								
Location: _____						Issue Date: ____ / ____ / ____		
Issued to: _____						Expiration Date: ____ / ____ / ____		
Only work documented on this permit is allowed to take place.								
Welding		Soldering		Hot Work Information		Cutting		Grinding
								<input type="checkbox"/> Y <input type="checkbox"/> N <input type="checkbox"/> na
Has an inspection been done of the unit/equipment to be worked on?								
Where inspected, was it found to be free of corrosives, toxics, and flammable materials?								
Is there an adequate supply of fresh air?								
Do the unit/equipment and atmospheric conditions permit safe work?								
Has the unit/equipment been secured from utility connections?								
Has the equipment been adequately protected? (Specify): _____								
Have combustible materials been removed from the area?								
Are nearby sewers protected, if applicable to the work being performed?								
Required fire protection (Circle): Extinguisher Welder's blanket/curtains Special Fire Watch Disconnect								
May underground or overhead obstructions or utilities be encountered?								
Are there any radiation concerns or precautions to follow?								
Have MSDS sheets been referenced for adverse reactions to the work being performed?								
Are any special procedures required during the work (pyrophorics, asbestos, confined space)?								
Is it permissible to use: Electrical equip. Y N Diesel equip. Y N Gasoline equip. Y N Propane equip. Y N								
Is welding permitted?								
Notes: _____								
Cooking Information								
Fuel Supply: _____								
Fire Extinguisher type and size: _____								
Will there be grease fried foods? <input type="checkbox"/> Y <input type="checkbox"/> N <input type="checkbox"/> na								
Valid Pressurized Liquid Extinguisher on site ('Purple K')? _____								
Permit recipient: _____				Issued by: _____				
Contact #: _____				Title: _____				