The new UNC Medical Center Surgical Tower on Manning Drive is set to be completed in 2024.

(Jon Gardiner/UNC-Chapel Hill)
Objectives

• Be able to identify steps that should be taken to safely use a crane on campus
• Types of Cranes (tower crane, truck crane, telescopic crane, etc)
• Understand what to look for on a site-specific crane lift plan
• Be able to identify hazards for all stakeholders (contractors, employees, pedestrians)
• Ensure proper communication with affected stakeholders on campus
Crane Lift Plan should include...

- Manufacturer
- Model
- Serial/ID Number
- Crane Type
- Rated Capacity
- Owner
- Radius (if applicable)
- Certification Date
- Operators and Licenses

Description of material being lifted
- Weight
- Capacity percentage of load

Safety Measures
- detours,
- signage,
- building access,
- overhead coverage (e.g., scaffolding w/plywood) required if lifting over occupied buildings or walkways,
- any other site-specific issues.

Potential include:
- Lifting pathways
- Methods of attachment
- Sling angles
- Load vectors
Crane Types

• Many types of cranes used in different industries. On campus, tower cranes and the mobile cranes (usually truck cranes) are the most common to find on campus

• Stationary Cranes
  • Tower cranes (Hammerhead, Luffing), Self-erecting tower cranes

• Mobile Cranes
  • Truck cranes, Rough/All terrain cranes, Crawler cranes
Lift Plans

Should include:

• Pedestrian traffic plan required if lifting over occupied buildings or walkways.

• The type, size, model, lifting capacity, certification date and serial number of the crane to be used.

• A list of items to be lifted/moved
  • The plan may include sketches showing lifting points and pathways, methods of attachment, sling angles, load vectors, boom and swing angles, crane orientations, related capacities, and other factors affecting the equipment and lifting operation.

• The name of the Operator, Rigger and Competent Person.

• Applicable rigging to be used as well as precautions and safety measure.

• Precautions that will be implemented if crane will be within 20 feet of power lines.
Lift Plans

Inspection data can go for several pages listing specific components and ratings of the crane or cranes to be used.

Other documents will be scanned in like licenses and medical approval for operation.
TEMPORARILY STAGE 25K VAPORIZERS ON DAY 2. TO BE OFFLOADED 8:00AM

ALL UNC VEHICLES TO BE REMOVED FROM THESE AREAS FROM DAY 2 8/17 8:00AM - DAY 3 8/18 EOB

TAGGED AUTHORIZED ENTRY/EXIT

TAGGED AUTHORIZED ENTRY/EXIT

DANGER TAPE

WILL NEED LOWER LOT ON:
DAY 2 8:00AM - NOON
DAY 3 8:00AM - NOON

ALL VAPORIZERS REMOVED TO BE TEMPORARILY STAGED IN THE GREEN AREA UNTIL REMOVAL ON DAY 3 BY NOON

40 TON CRANE WILL LEAVE EACH DAY
Lift Plans

• Send lift plan to Energy Services, Parking and Transportation, and UNC Hospitals
  • Send the lift plan to Energy Services 2 weeks in advance. They will use that time to locate and ensure crane will not damage any utilities.
  • UNC Hospitals required to know of lift plans (date, location, etc) for the Carolina Air Care (special lighting may be required base on height/location).

• Determine if any other extra safety measures are needed based on lift requirements. The qualified person can determine if a lift is considered critical and could require precautions like a building/floor evacuation.
Pedestrian Safety

• Based on our location and client base (students, faculty, staff), this is one of the most important items they should include

Examples:

• Email communication, signage, personnel to direct foot traffic, and detours
• Covered walkways using scaffolding and plywood
• These items should be used in conjunction with one another to improve communication and safety efforts
• Notify Hospital EHS if hospital pedestrians or operations will be affected
Pedestrian Safety

Maps/Communication with affected building occupants

Physical Protection

Signage/Ground Crews

Medical Education Building Phase One Work Zone and Pedestrian Routes
Onsite Work

• During site visits check and see how pedestrian controls are going

• Check and see if proper PPE and safety procedures are being followed
  • Hard hats, safety glasses, etc
  • No one under the load while it is being lifted
  • Lift looks secure

• Contact contractor/site supervisor to report any hazards and UNC EHS

• EHS will also do periodic checks and contact UNC CM if any issues arise
WARNING
Overhead crane
Hard hats
Safety glasses
Safety shoes required
Problem 1:
(a) Method A: two, inverted basket hitches
(b) Method B: three, single (vertical) leg slings

Problem 4:
(a) Method A: one, double wrap basket hitch and two, single (vertical) leg slings
(b) Method B: one, single wrap choker hitch and one, inverted basket hitch

Problem 2:
(a) Method A: one, single (vertical) leg sling and one, inverted basket hitch
(b) Method B: three, single (vertical) leg slings

Problem 5:
(a) Method A: two, single wrap basket hitches
(b) Method B: two, double wrap choker hitches

Problem 3:
(a) Method A: four, choker hitches
(b) Method B: two, choker hitches

Problem 6:
(a) Method A: two, single (vertical) leg slings
(b) Method B: one running basket hitch
Onsite Work

Could the crane get within 20 feet of a power line?

Yes

Option 1: De-energize and ground

Option 2: 20 foot clearance

Option 3: Ask utility for voltage and use Table A (with minimum clearance distance)

No

No further action

Encroachment prevention measures (equipment operations)

- Planning meeting
- If tag line is used- non conductive material
- Elevated warning lines, barricade or line of signs
- Above required with one of the following: Proximity alarm, spotter, warning device, range limiter, or insulating link
Awareness Key Points

• Identify steps that should be taken to safely use a crane on campus
• Types of Cranes and potential functions
• Site specific crane lift plan and communication with EHS, building occupants, and other affected parties
• Identification of hazards for all stakeholders on campus
• Ensure contractors are generally using cranes safely and UNC faculty, students, and staff are safe from hazards
Helpful Links

- [https://www.labor.nc.gov/cranes-and-derricks#regulations](https://www.labor.nc.gov/cranes-and-derricks#regulations)
  NCDOL link has some great information and documents related to crane use and checklists for the contractors and operators
