

Equipment Specifications

Magnetic Resonance Imaging

[VISN-12 Captain James A. Lovell FHCC]

Click or tap here to enter text

A. REQUIREMENT OVERVIEW

3T scanner to be installed in the MRI suite currently housing the Phillips 3T Achieva Scanner in Main Imaging.

Facility	Quantity
Captain James A. Lovell FHCC	1

B. TECHNICAL REQUIREMENTS

1. Unit physical specifications

a. Magnetic field strength [T]	3T
b. Minimum bore width [cm]	>65 cm
c. Minimum bore depth [cm]	
d. Minimum field of view [cm]	
e. Minimum slew rate [T/m/s]	
f. Minimum number of channels	32
g. Maximum patient weight withstood [lb]	>400 lb
h. Minimum UPS time at full functionality [s]	
i. Maximum system dimensions [cm]	
j. Maximum system weight [kg]	12,000 pounds See attached drawing for detail
k. Number of tables required	1

2. Additional specifications

<input type="checkbox"/>	a. Compressed sense
<input checked="" type="checkbox"/>	b. Motion correction technology
<input checked="" type="checkbox"/>	c. Helium save technology
<input checked="" type="checkbox"/>	d. Noise reduction technology
<input checked="" type="checkbox"/>	e. Power conditioning as recommended by vendor
<input checked="" type="checkbox"/>	f. Uninterruptible power supply



<input checked="" type="checkbox"/>	g. Vector ECG (VCG), Respiratory, and Peripheral Pulse grating/triggering				
<input checked="" type="checkbox"/>	h. Advanced exam planning technology				
<input checked="" type="checkbox"/>	i. Geometry linking (multi-station exams)				
<input type="checkbox"/>	j. Real-time MIP, MPR, and 3D surface rendering				
<input checked="" type="checkbox"/>	k. Advanced MR viewing environment for viewing, processing, and film generation				
<input checked="" type="checkbox"/>	l. Shielding <table border="1" style="display: inline-table; vertical-align: middle;"> <tr> <td><input checked="" type="radio"/></td> <td>Active</td> </tr> <tr> <td><input type="radio"/></td> <td>Passive</td> </tr> </table>	<input checked="" type="radio"/>	Active	<input type="radio"/>	Passive
<input checked="" type="radio"/>	Active				
<input type="radio"/>	Passive				
<input type="checkbox"/>	m. Patient-specific shimming				
<input checked="" type="checkbox"/>	n. Dixon-type technology for body, neuro, and musculoskeletal imaging				
<input type="checkbox"/>	o. Advanced non-contrast MRA imaging technology				
<input type="checkbox"/>	p. 3D FSE-based sequence for isotropic resolution in all contrasts				
<input type="checkbox"/>	q. Bolus tracking system				
<input type="checkbox"/>	r. Tabletop integrated coil design and ports				
<input type="checkbox"/>	s. Heavy duty wide patient restraints				
<input checked="" type="checkbox"/>	t. Patient positioning and support aids				
<input type="checkbox"/>	u. Stepping capable table				
<input type="checkbox"/>	v. Integrated music system, to include the following: Control room controls Speech communication for patient direction Speakers in both the exam room and control room Headphone jack on patient table MRI-safe headphones				
<input type="checkbox"/>	w. Video camera system for monitoring inside the exam room from the control room				
<input checked="" type="checkbox"/>	x. MRI-compatible injector (Please specify all available MRI-compatible injector options.)				
<input checked="" type="checkbox"/>	y. Cryogenics (Vendors are expected to provide and install all cryogenics.)				
<input checked="" type="checkbox"/>	z. Chiller meeting or exceeding MRI needs				
<input checked="" type="checkbox"/>	aa. All phantoms required for proper calibration and performance verification (Vendors are expected to provide phantoms for all system requirements and options identified in this document that require phantoms.)				
<input checked="" type="checkbox"/>	bb. Power conditioning as recommended by vendor, to include the following: Protection from electrical failures, emergency power tests, power peaks and drops, electrical storms, etc. Prevention of image quality degradation				



<input type="checkbox"/>	cc. Uninterruptible power supply
<input type="checkbox"/>	dd. MRI-compatible stretcher
<input type="checkbox"/>	ee. MRI-compatible ventilator
<input type="checkbox"/>	ff. MRI-compatible wheelchair
<input type="checkbox"/>	gg. MRI-compatible infusion pump
<input type="checkbox"/>	hh. Fixed or mobile wand solution for metal detection
<input type="checkbox"/>	ii. Other specifications

3. Workstation Requirements

<input type="checkbox"/>	a. Minimum acquisition workstation monitor size [in]	
<input type="checkbox"/>	b. Minimum acquisition workstation hard drive space [GB]	
<input type="checkbox"/>	c. Minimum number of processing/reading workstations	
<input type="checkbox"/>	d. Minimum processing/reading workstation monitor size [in]	
<input type="checkbox"/>	e. Minimum processing/reading workstation hard drive space [GB]	
<input type="checkbox"/>	f. Workstation UPS	
<input type="checkbox"/>	g. MRI-compatible patient monitor (including ECG)	
<input type="checkbox"/>	h. Other workstation requirements	

4. Coil Requirements

<input checked="" type="checkbox"/>	a. Torso
<input checked="" type="checkbox"/>	b. Knee
<input checked="" type="checkbox"/>	c. Shoulder
<input checked="" type="checkbox"/>	d. Head/neck/spine/array
<input checked="" type="checkbox"/>	e. Neuro vascular
<input type="checkbox"/>	f. Run-off
<input type="checkbox"/>	g. Foot/ankle
<input checked="" type="checkbox"/>	h. Wrist
<input type="checkbox"/>	i. Elbow
<input type="checkbox"/>	j. Cardiac
<input checked="" type="checkbox"/>	k. Breast
<input checked="" type="checkbox"/>	l. Prostate imaging
<input type="checkbox"/>	m. Functional MRI head
<input type="checkbox"/>	n. Carotid



<input type="checkbox"/>	o. Endorectal
<input type="checkbox"/>	p. Periphery vascular
<input checked="" type="checkbox"/>	q. Extremity, flexible
<input checked="" type="checkbox"/>	r. Transmit/receive
<input type="checkbox"/>	s. Adjustable neurovascular head
<input type="checkbox"/>	t. Whole body imaging
<input type="checkbox"/>	u. Other specifications

Each vendor is to respond with coils that meet the criteria listed above. Please include all other coils offered by your company in the optional section of the quotes.

5. Table Requirements

<input checked="" type="checkbox"/>	a. Detachable
<input type="checkbox"/>	b. Motorized
<input type="checkbox"/>	c. Adjustable height when table is attached and detached
<input type="checkbox"/>	d. Tabletop integrated coil design and ports
<input type="checkbox"/>	e. Other table requirements

6. Safety Requirements

<input checked="" type="checkbox"/>	a. Safety system for magnet quenching and emergency shutdown, to include the following: Alarms for low cryogen levels, temperature limits, scans in progress Indicators for cryogen levels Heat sensor shut-offs for room temperature problems Oxygen monitor in gantry room
<input checked="" type="checkbox"/>	b. Fire suppression system meeting NFPA standards and all applicable codes (the system must connect to the facility fire alarm system)
<input type="checkbox"/>	c. Other specifications

7. Advanced Applications

<input checked="" type="checkbox"/>	a. 3D processing for all modality datasets
<input checked="" type="checkbox"/>	b. Neuro
<input checked="" type="checkbox"/>	c. Ortho
<input checked="" type="checkbox"/>	d. Body
<input type="checkbox"/>	e. Cardiovascular
<input checked="" type="checkbox"/>	f. Muscular
<input type="checkbox"/>	g. Oncology



<input type="checkbox"/>	h. Vascular
<input checked="" type="checkbox"/>	i. MRA
<input type="checkbox"/>	j. Elastography
<input type="checkbox"/>	k. Spectroscopy
<input checked="" type="checkbox"/>	l. Phase contrast MRI and flow analysis
<input checked="" type="checkbox"/>	m. Parametric prostate imaging
<input type="checkbox"/>	n. Fiber tracking software
<input checked="" type="checkbox"/>	o. Integration to third party Advanced Visualization System
<input type="checkbox"/>	p. Mobile trailer requirements
<input type="checkbox"/>	q. Other specifications

Each vendor is to respond with advanced applications that meet the criteria listed above. Please include all other advanced applications offered by your company in the optional section of the quotes.

8. Mobile Trailer Requirements

<input type="checkbox"/>	a. Sem-trailer truck equipped with stabilizing shocks to prevent disruption of the machine
<input type="checkbox"/>	b. Other specifications

9. Security/Connectivity Requirements

<input checked="" type="checkbox"/>	a. OEM-supported operating system
<input checked="" type="checkbox"/>	b. Latest DICOM print, store, commit, and modality worklist
<input checked="" type="checkbox"/>	c. HL7 integration (HIS/RIS)
<input type="checkbox"/>	d. Wireless connectivity to VA network – Compatible with 802.11b/g/n and FIPS 140-2 compliant
<input checked="" type="checkbox"/>	e. Encrypted hard drive
<input checked="" type="checkbox"/>	f. PACS compatibility – [AGFA]
<input type="checkbox"/>	g. Other security requirements

10. Added Value

Specifications listed below are not required, but preferred. Vendors who do not include the below specifications in the submitted offer will not be docked or excluded from consideration. Specifications listed below will be evaluated based on added value.

<input checked="" type="checkbox"/>	a. Additional year(s) of warranty
<input checked="" type="checkbox"/>	b. Post-warranty remote diagnostic service program
<input checked="" type="checkbox"/>	c. Version/platform long-range plan
<input type="checkbox"/>	d. Other objectives



C. TRAINING REQUIREMENTS

1. Clinical Training

<input checked="" type="checkbox"/>	a. On-site clinical applications training for 5 technologists during go-live
<input checked="" type="checkbox"/>	b. On-site follow-up clinical applications training for 5 technologists once technologists have hands-on experience with the system
<input type="checkbox"/>	c. Off-site clinical applications training for technologists (to include tuition)
<input type="checkbox"/>	d. Off-site clinical applications training for ## physicians (to include tuition)
<input checked="" type="checkbox"/>	e. Technologists who complete the clinical applications training shall receive continuing education credits (CMEs).
<input type="checkbox"/>	f. Vendors shall be responsible for accommodating different personnel shifts for clinical applications training during go-live.

2. Biomedical Technician Training

Off-site technical training will not be purchased at the time of award. Vendors must demonstrate that they can provide any required off-site training listed above, therefore off-site training should be quoted as an optional item. Travel for VA employees is not authorized under the HTME contracts. In no case should any training include expenses for travel or travel for VA personnel at no cost.

<input checked="" type="checkbox"/>	a. Biomedical technician training package (to include tuition)
<input type="checkbox"/>	b. Biomedical technician training shall include any prerequisites required prior to the training and shall be equivalent to the training received by OEM field service representatives.
<input checked="" type="checkbox"/>	c. Technicians shall be given all service manuals, schematics, diagrams, diagnostic software, other special tools, and keys equivalent to what OEM field service representatives have available to diagnose, troubleshoot, repair, and maintain the equipment.

D. SERVICE REQUIREMENTS

1. VPN/Remote Access – The vendor shall provide any and all equipment service programs, such as remote diagnostics, during the warranty period. The vendor shall provide post-warranty remote diagnostic service program as an “Add Option” with the offer. The system shall provide vendor remote diagnostics via VPN.



- The vendor shall either utilize the VA national site-to-site VPN or work with the Office of Cyber and Information Security and the VAMC Information Systems Security Officer to establish a client-based VPN.
2. Service and Operator Manuals – The vendor shall provide the following documentation for the proposed systems:
 - a. Two (2) copies of operator instruction manuals (one (1) electronic and one (1) physical copy)
 - b. Two (2) copies of a service manuals (one (1) electronic and one (1) physical copy)
 3. Minimum Warranty – The system and accessories shall be covered under the manufacturer’s warranty and shall include all parts and labor for one year following acceptance by the VAMC. This warranty must include PMs as required by the manufacturer. The manufacturer’s factory-trained field service representatives shall perform installation and maintenance during the warranty period.

Vendors are encouraged to include any offerings for service, warranty, and training that may exceed the requirements with their proposals. Vendors who do not include any added value offerings for service, warranty, and training will not be docked or excluded from consideration. However, any such offerings will be evaluated based on added value.

E. OTHER INFORMATION/DOCUMENTATION REQUESTED

1. Product brochures
2. Technical specification sheets, to include dimensions and weight of the system
3. DICOM Conformance Statement
4. IHE integration statement
5. FIPS 140-2 certification
6. Completed pre-procurement assessment form (6550)
7. Completed MDS2 form
8. Detailed information about the curriculum and length of the biomedical technical training
9. Details on any off-site training offered for technologists
10. Information about your company’s support structure during the warranty period
 - a. Describe on-line or telephonic applications support and availability (include third party coverage)
 - b. Provide a listing of field service engineer locations and availability
 - c. Provide a listing of part depots
11. Information about your company’s support options following the warranty period, including a description of on-line or telephonic applications support and availability
12. Information on any FDA safety recalls associated with the proposed equipment

F. TRADE-IN

<input checked="" type="checkbox"/>	a. In instances where sanitization of ePHI compromises the OS and/or application software, or requires the removal of internal storage media, the vendor accepts the equipment “as is” and can elect at their own discretion to contract with the original equipment manufacturer (OEM) to restore the system.
<input type="checkbox"/>	b. In instances where sanitization of ePHI compromises the OS and/or application software, the operating system and application software will be reloaded by VA or a vendor contracted by VA on the native system post drive sanitization. Verification of system operation is the responsibility of the vendor.
<input type="checkbox"/>	c. VA has no trade-in units to offer.



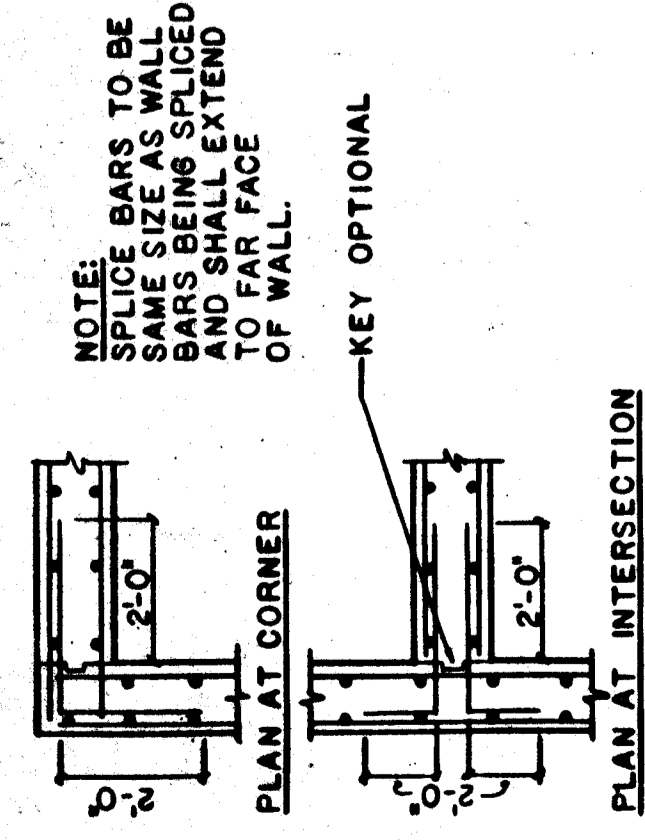
The following equipment is available for trade-in. Please reflect any credits provided for trade-in equipment in the proposal.

Station	556 North Chicago
Manufacturer	Philips
Model	ACHIEVA 3.0T
EE/Asset Number	27036
Serial Number	17284

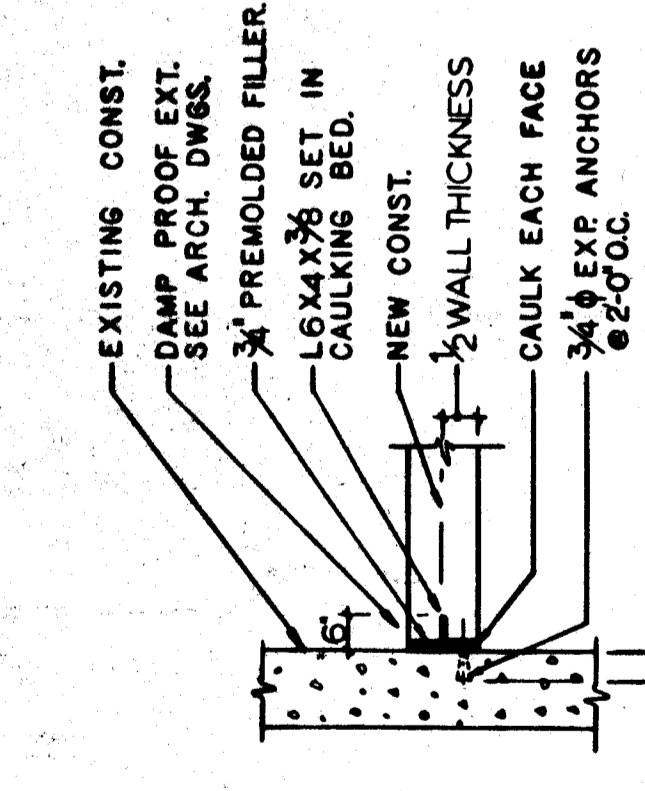
G. SUMMARY OF REQUIREMENTS

Facility	PO Number	Characteristic 1	Characteristic 2	Characteristic 3	Characteristic 4

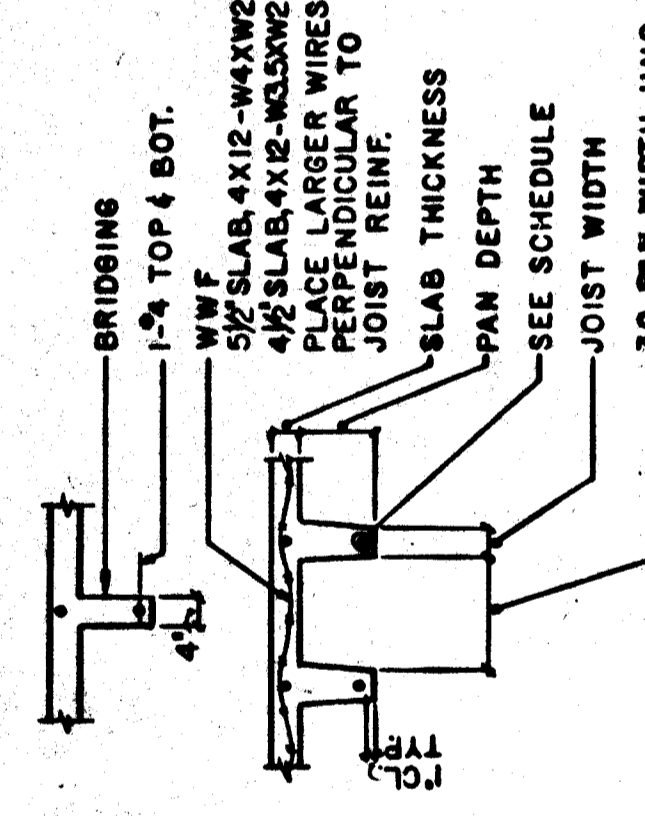




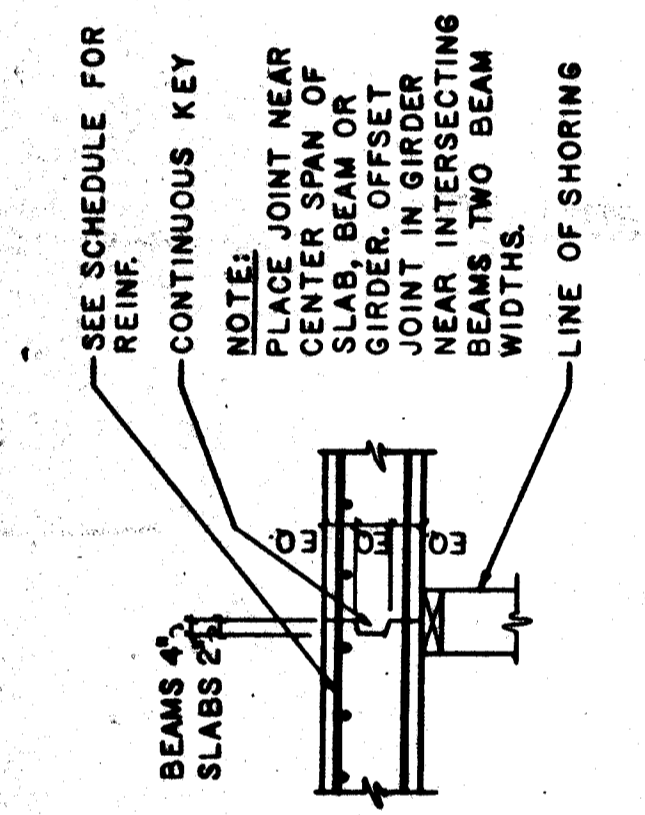
1 SPLICE BARS
N.T.S.



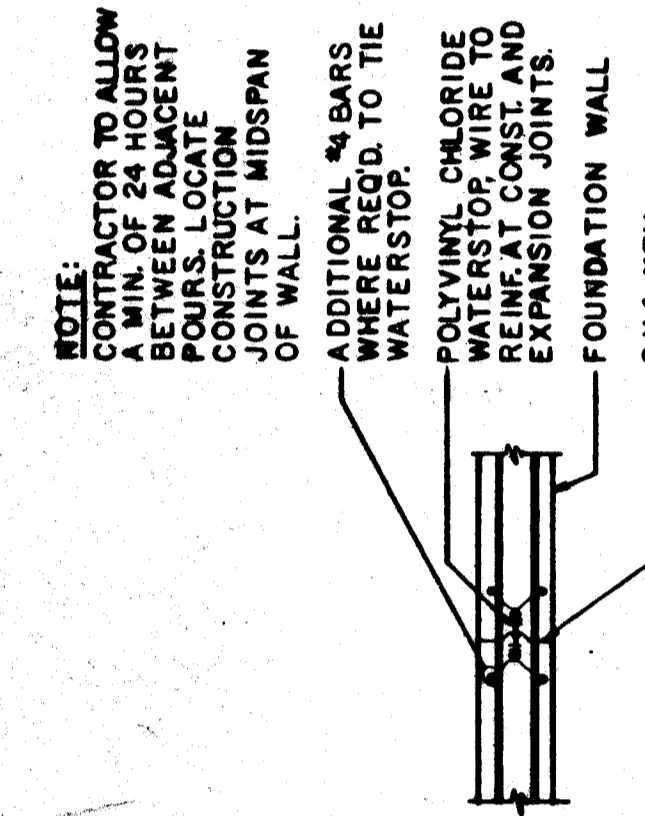
2 LINER ANGLE
N.T.S.



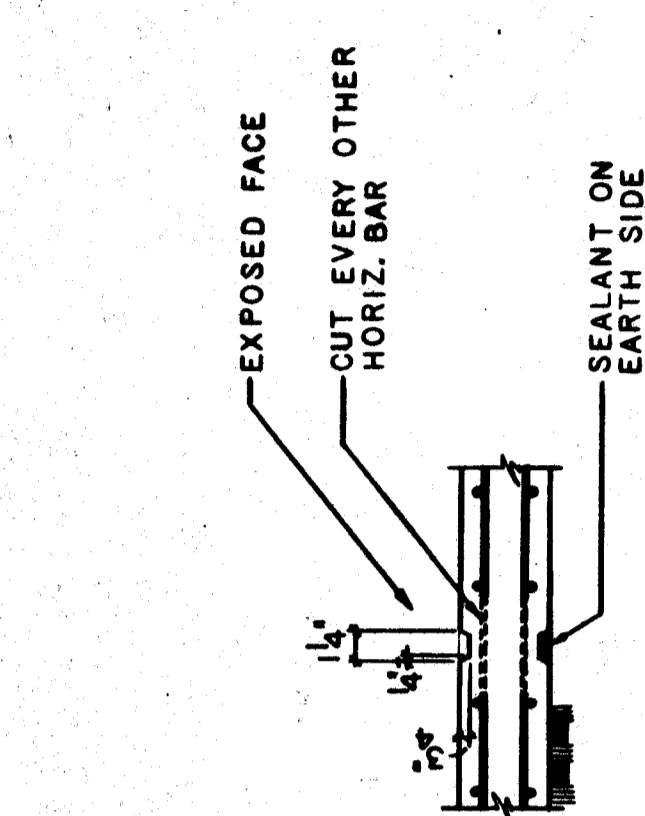
3 CONCRETE JOIST
N.T.S.



4 FRAMED SLAB/BEAM CONST. JOINT
N.T.S.



5 WALL CONST. JOINT
N.T.S.



6 RETAINING WALL CONTROL JOINT
N.T.S.

DESIGN AND LOADING
ALLOWABLE UNIT STRESSES AND LOADS IN ACCORDANCE WITH THE UNIVERSITY BUILDING CODE, 1965 EDITION, EXCEPT AS MODIFIED BY THE VALUATION DESIGN LOAD REQUIREMENTS DATED JANUARY 1974 AND REVISED OCTOBER 1982.
LIVE LOADS USED IN DESIGN IN LBS. PER SQ. FT. ARE AS FOLLOWS:
ROOF AREAS.....30 (PLUS SNOW DRIFTS)
NURSING AREAS.....100
SUPPORT AREAS.....100
PARTITION DEAD LOAD.....25
STAIRS.....100
MECHANICAL FLOORS.....150
MECHANICAL ROOFS.....150
WIND DESIGN FACTORS: V = .075W ULTIMATE LATERAL FORCE
R min. = 0.059 (REF. VA 11-03-8)

THE STRUCTURE OF BUILDING 133 HAS BEEN DESIGNED FOR TWO ADDITIONAL FUTURE FLOORS AND LEVELS 4 AND 5 INCLUDING COLUMNS, FOOTINGS, AND LATERAL LOAD ANALYSIS. SEE DWG. 9-22 FOR LOCATION.

SOIL - EXCAVATION AND BACKFILL
REPORT OF SOIL EXPLORATION DATED JULY 2, 1985 AND OCTOBER 3, 1987 BY TESTING ENGINEER, CAROL STEPHAN, ILLINOIS. SEE DWG. 9-1 FOR FOUNDATIONS OF EXISTING STRUCTURES WITHIN THE AREA OF NEW CONSTRUCTION.
PROVIDE ALL SHORING AND BRACING REQUIRED TO PROTECT ALL NEW EXCAVATIONS AND EXISTING STRUCTURES.
ALL FOOTINGS HAVE BEEN PROPORTIONED FOR AN ASSUMED NET ALLOWABLE SOIL BEARING CAPACITY OF 5000 LBS. PER SQ. FOOT EXCEPT FOOTINGS FOR BEAMS WHICH ARE PROPORTIONED FOR AN ASSUMED NET ALLOWABLE SOIL BEARING CAPACITY OF 1000 LBS. PER SQ. FOOT EXCEPT FOOTINGS FOR FOUR CONCRETE WITHOUT APPROVAL OF RESIDENT ENGINEER.
OTHER EXCAVATIONS FOR ALL EAST-SOUTH-EAST BEARS. THE EXPOSED NATURAL SOIL SHALL BE THOROUGHLY COMPACTED PRIOR TO PLACING FINISHED MATERIAL. A MINIMUM OF 4\"/>

CONCRETE 28 DAY TEST STRENGTH AND WEIGHT SHALL BE AS FOLLOWS:
SPREAD FOOTINGS.....3000 P.S.I. @ 150 P.C.F.
FOUNDATION AND RETAINING WALLS.....4000 P.S.I. @ 150 P.C.F.
COLUMNS.....4000 P.S.I. @ 150 P.C.F.
FRAMED SLABS, JOIST AND BEAMS.....4000 P.S.I. @ 150 P.C.F.
GRADE SLABS.....3000 P.S.I. @ 150 P.C.F.
FILL SLABS.....3000 P.S.I. @ 115 P.C.F.
FILL SLABS.....3000 P.S.I. @ 115 P.C.F.

BAR REINFORCEMENT SHALL CONFORM TO ASTM A415, GRADE 60. WHERE NOT SHOWN OR NOTED, PROVIDE A MINIMUM AREA OF STEEL IN ALL CONCRETE WORK.
0.18% OF GROSS AREA FOR FRAMED SLABS
0.25% OF GROSS AREA FOR HORIZONTAL WALL REINF.
0.25% OF GROSS AREA FOR VERTICAL WALL REINF.

CONCRETE PROTECTION FOR REINFORCEMENT BARS SHALL BE AS FOLLOWS:
FOOTINGS.....3\"/>

CONCRETE AND REINFORCEMENT
CONCRETE 28 DAY TEST STRENGTH AND WEIGHT SHALL BE AS FOLLOWS:
SPREAD FOOTINGS.....3000 P.S.I. @ 150 P.C.F.
FOUNDATION AND RETAINING WALLS.....4000 P.S.I. @ 150 P.C.F.
COLUMNS.....4000 P.S.I. @ 150 P.C.F.
FRAMED SLABS, JOIST AND BEAMS.....4000 P.S.I. @ 150 P.C.F.
GRADE SLABS.....3000 P.S.I. @ 150 P.C.F.
FILL SLABS.....3000 P.S.I. @ 115 P.C.F.
FILL SLABS.....3000 P.S.I. @ 115 P.C.F.

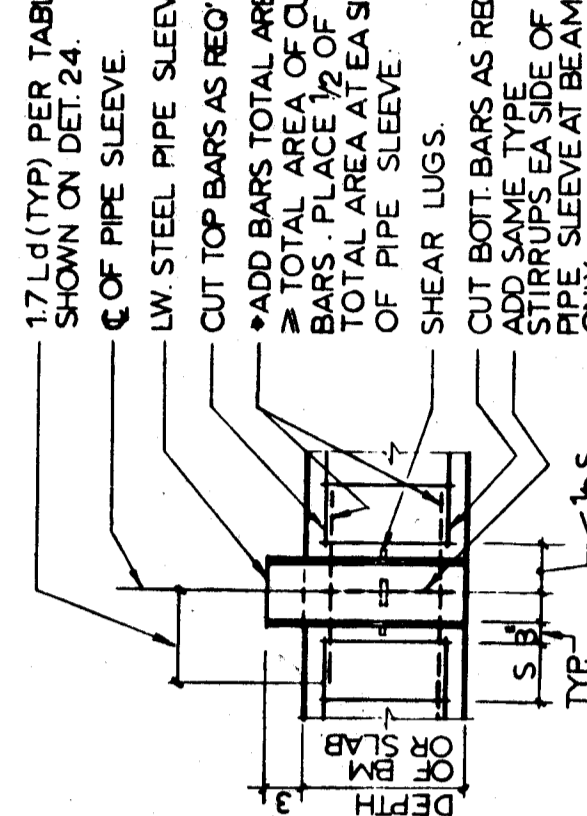
BAR REINFORCEMENT SHALL CONFORM TO ASTM A415, GRADE 60. WHERE NOT SHOWN OR NOTED, PROVIDE A MINIMUM AREA OF STEEL IN ALL CONCRETE WORK.
0.18% OF GROSS AREA FOR FRAMED SLABS
0.25% OF GROSS AREA FOR HORIZONTAL WALL REINF.
0.25% OF GROSS AREA FOR VERTICAL WALL REINF.

CONCRETE PROTECTION FOR REINFORCEMENT BARS SHALL BE AS FOLLOWS:
FOOTINGS.....3\"/>

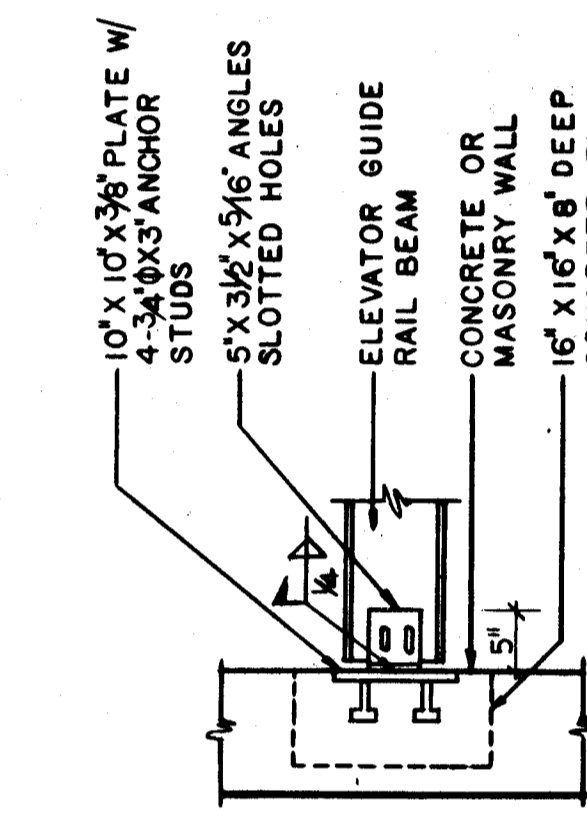
STRUCTURAL STEEL
ALL STRUCTURAL STEEL SHALL MEET THE REQUIREMENTS OF ASTM A-36.
ALL CONNECTIONS SHALL BE SIZED TO SUPPORT A MINIMUM REACTION EQUAL TO 75% OF COMPOSITE AND 50% FOR NON-COMPOSITE BEAMS OF THE TOTAL WEIGHT OF THE BEAM. CONNECTIONS SHALL BE SIZED TO SUPPORT THE WEIGHT OF THE BEAM PLUS THE WEIGHT OF THE BEAM AS INDICATED ON THE DRAWINGS.
ALL BOLTS SHALL BE 3/4\"/>

DETAIL DECK
ROOF DECK UNITS SHALL BE 1-1/2\"/>

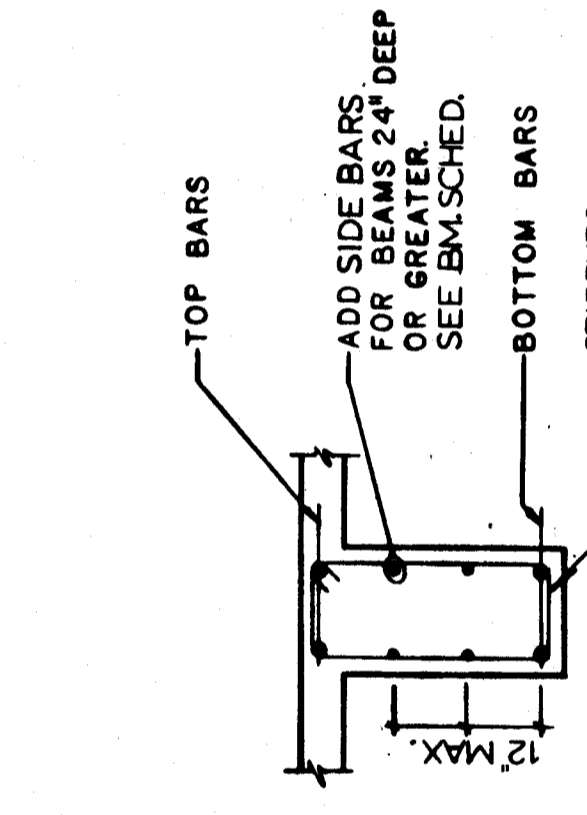
MISCELLANEOUS
CONTRACTOR SHALL FIELD VERIFY ALL EXISTING CONSTRUCTION, DIMENSIONS, MEMBER SIZES, UTILITY LOCATIONS AND ELEVATIONS FOR CORRELATION WITH THE DRAWINGS. UTILITY LOCATIONS AND ELEVATIONS FOR CORRELATION WITH THE DRAWINGS SHALL BE MECHANICALLY FASTENED TOGETHER AT 36\"/>



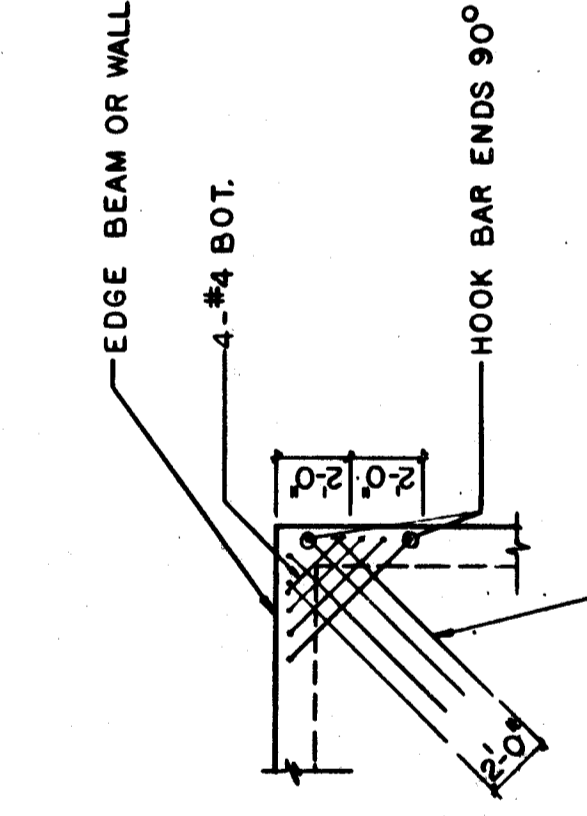
7 WALL OPENINGS
N.T.S.



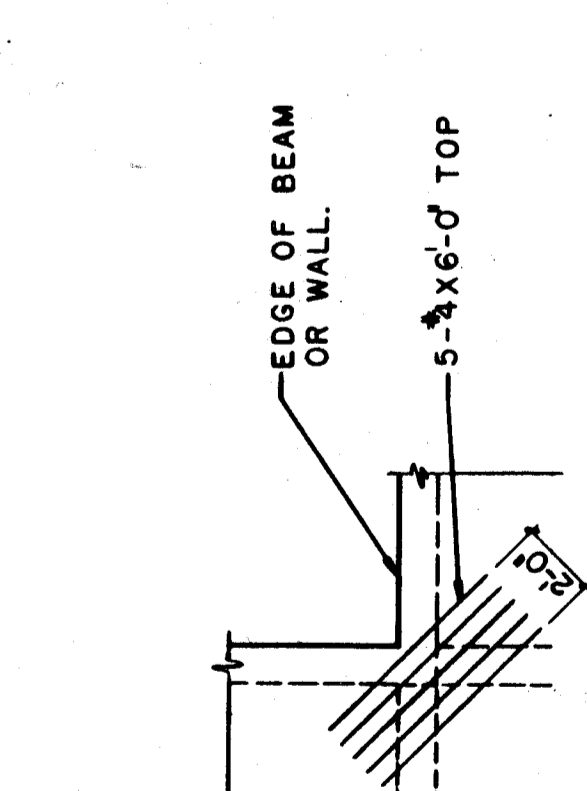
8 SLAB CORNER BARS INTERIOR
N.T.S.



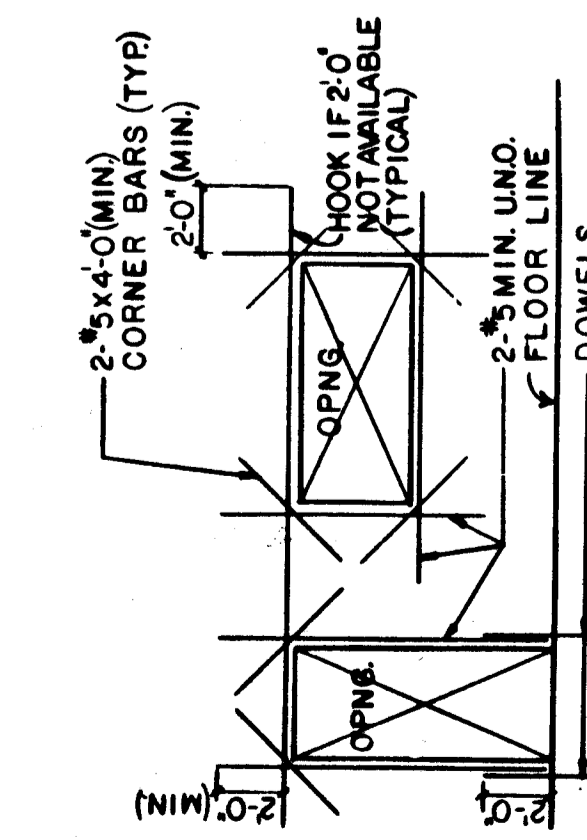
9 SLAB CORNER BARS EXTERIOR
N.T.S.



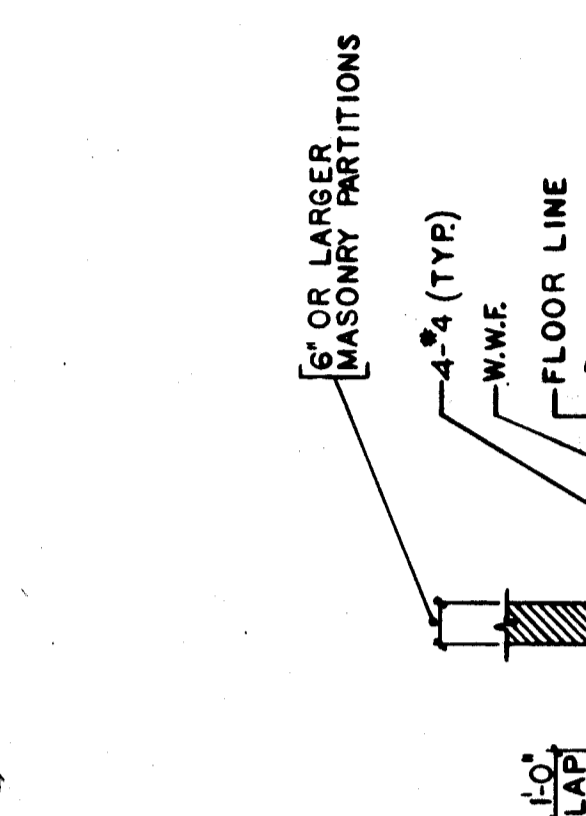
10 BEAM FACE REINF.
N.T.S.



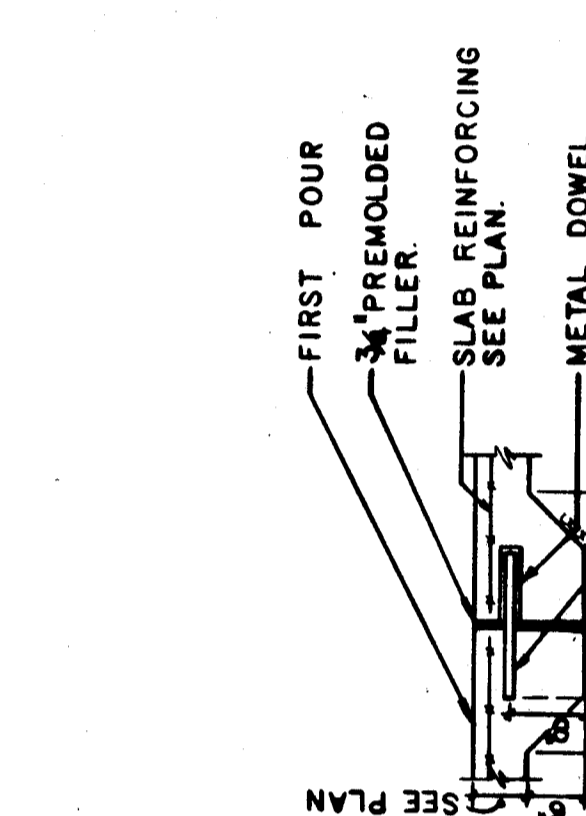
11 GUIDE RAIL BEAM CONNECTION
N.T.S.



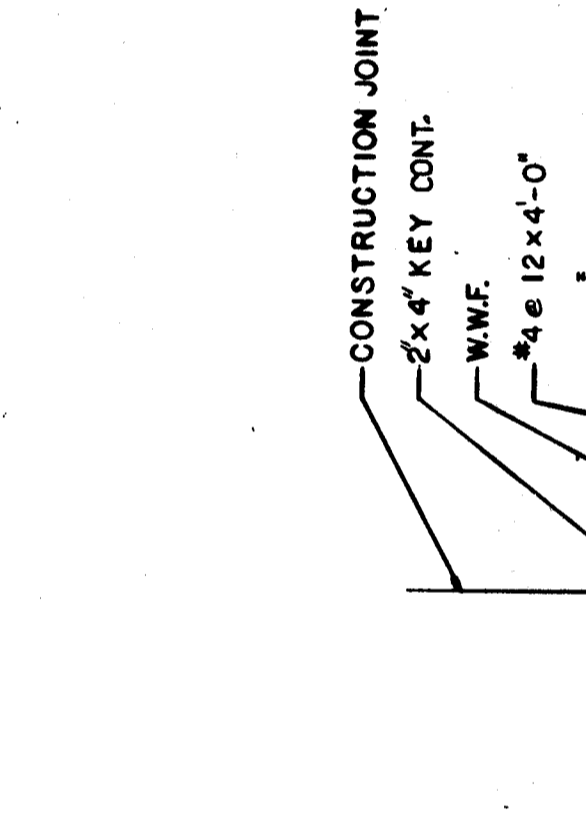
12 TYP PIPE SLEEVE
N.T.S.



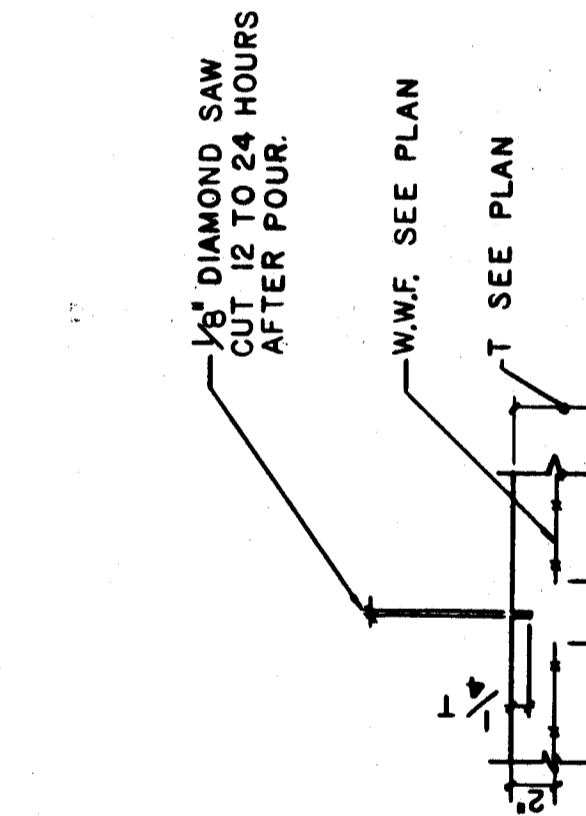
13 GRADE SLAB DEPRESSION
N.T.S.



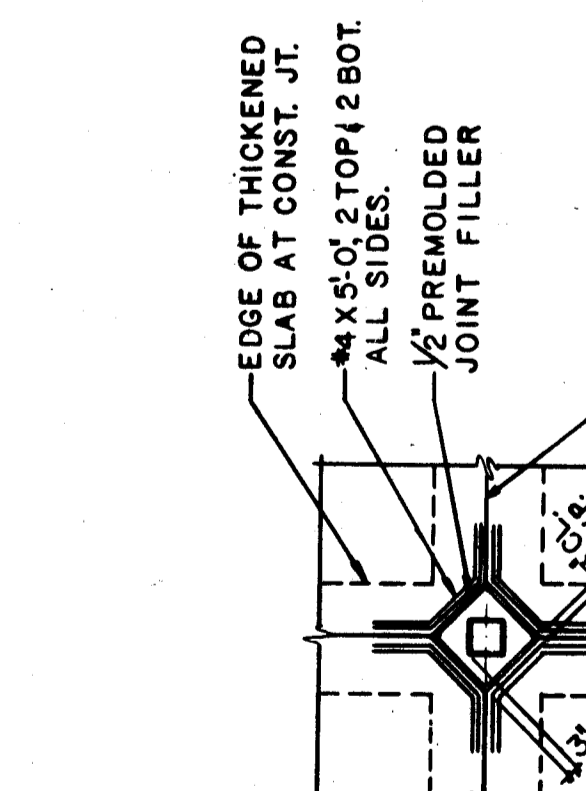
14 ISOLATION JOINT
N.T.S.



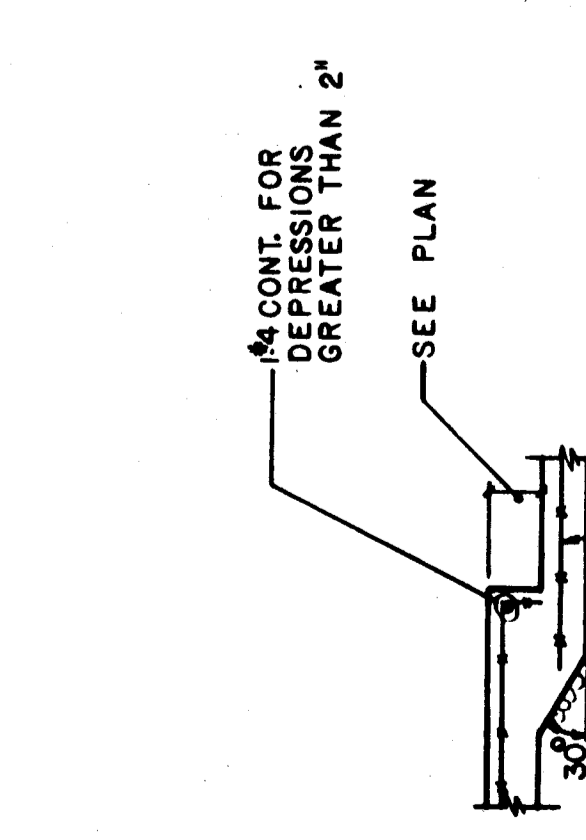
15 GRADE SLAB CONTROL JOINT
N.T.S.



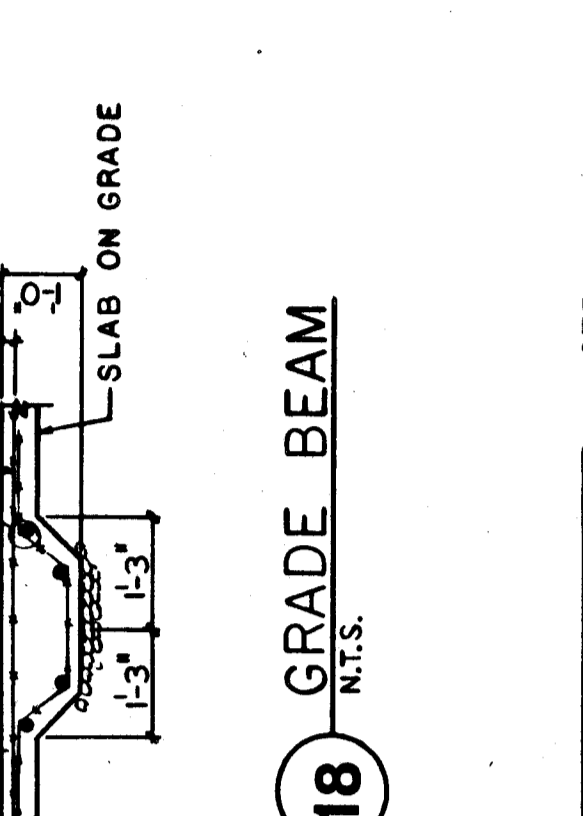
16 JOINT DETAIL
N.T.S.



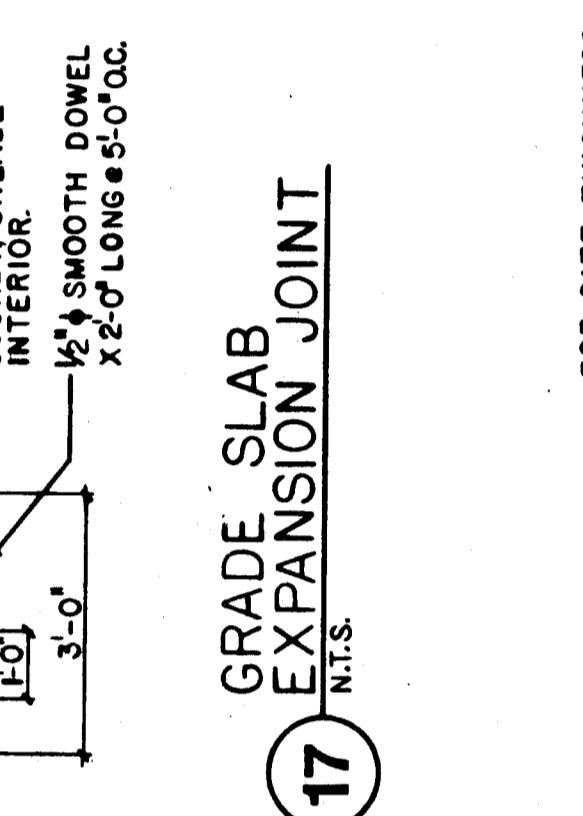
17 GRADE SLAB EXPANSION JOINT
N.T.S.



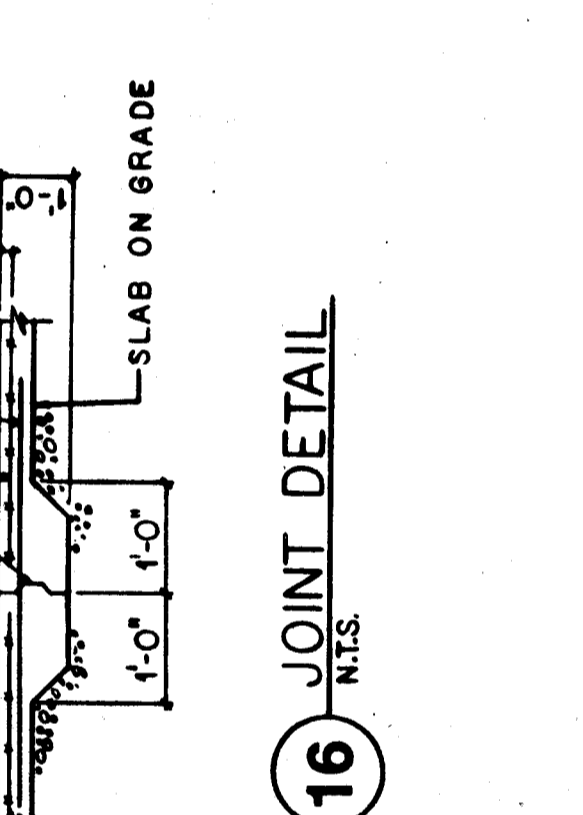
18 GRADE BEAM
N.T.S.



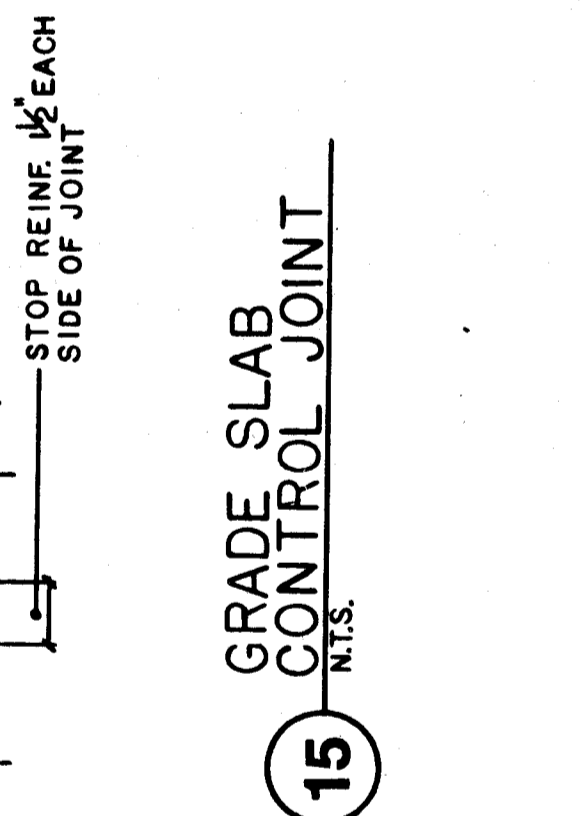
19 STEPPED WALL FTG.
N.T.S.



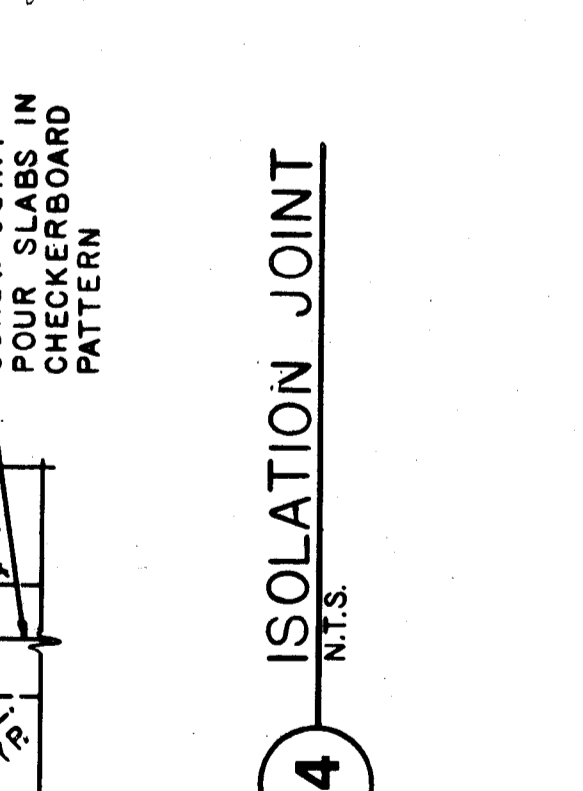
20 EXCAVATIONS AT FOOTINGS
N.T.S.



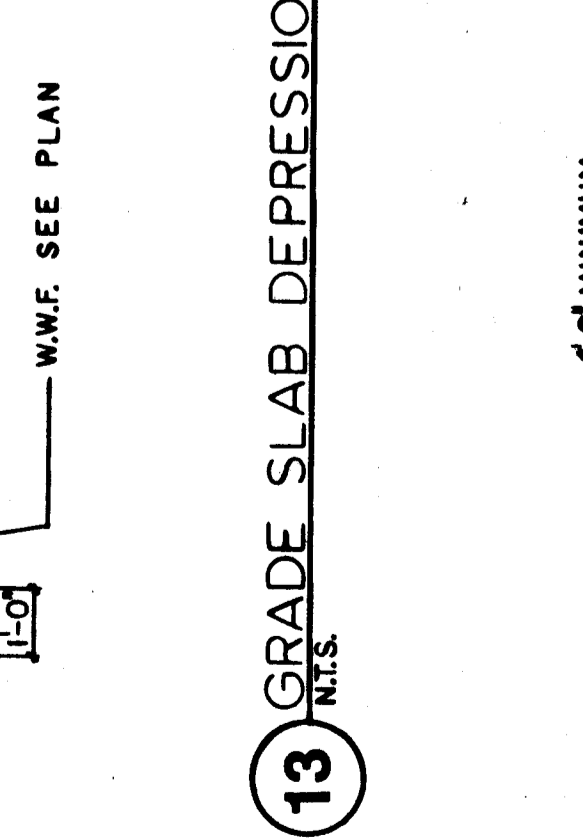
21 FOUNDATION PIPE SLEEVES
N.T.S.



22 CONCRETE CURBS
N.T.S.



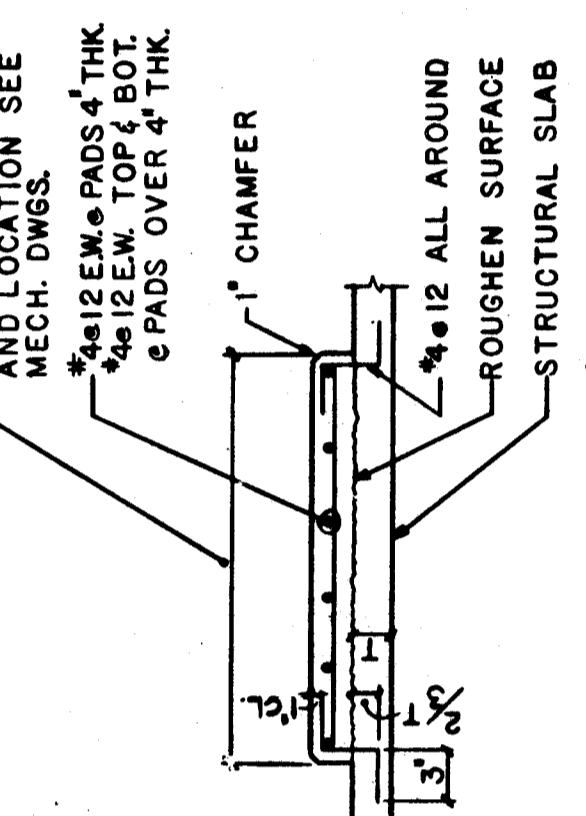
23 EQUIPMENT PAD
N.T.S.



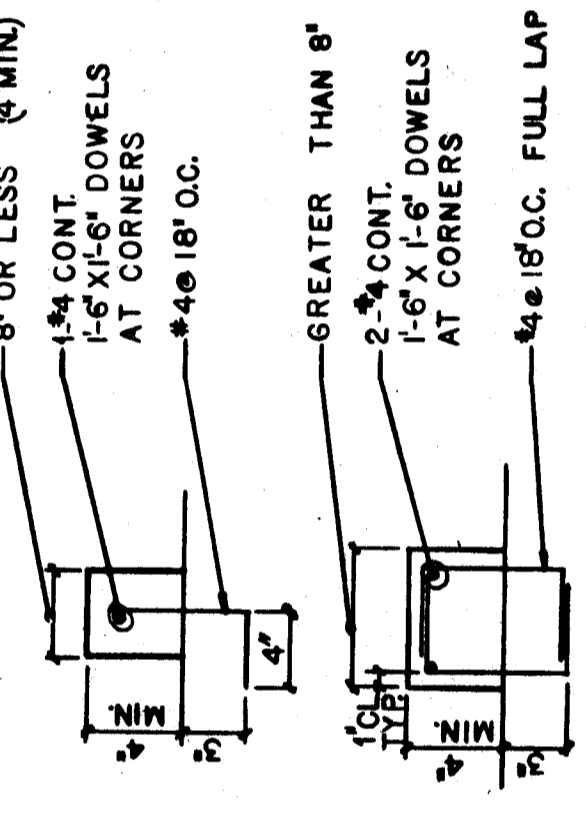
24 BAR DEVELOPMENT
N.T.S.

NOTE: DEVELOPMENT LENGTH OF BARS PER CHART OR AS NOTED MINIMUM.

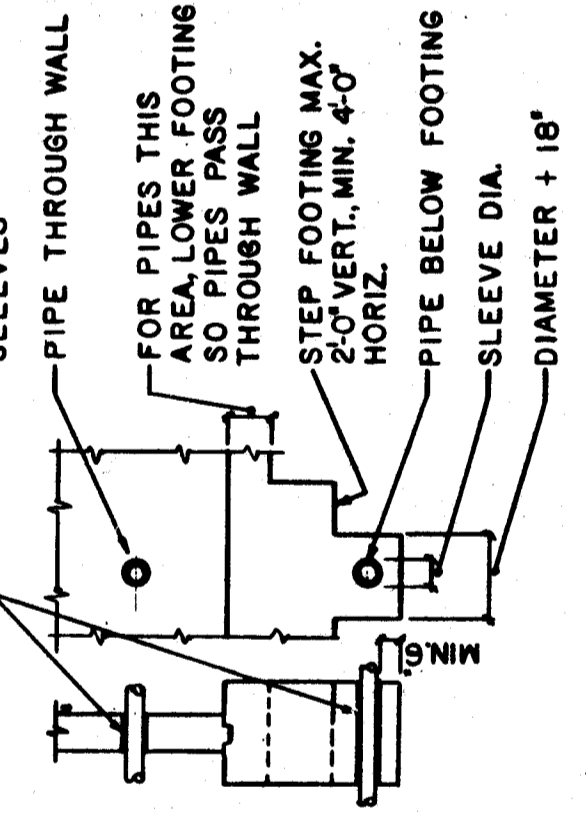
BAR SIZE	L _d	L _{dc}
3	12	12
4	12	15
5	15	19
6	18	23
7	23	28
8	30	30
9	38	34
10	48	38
11	59	42



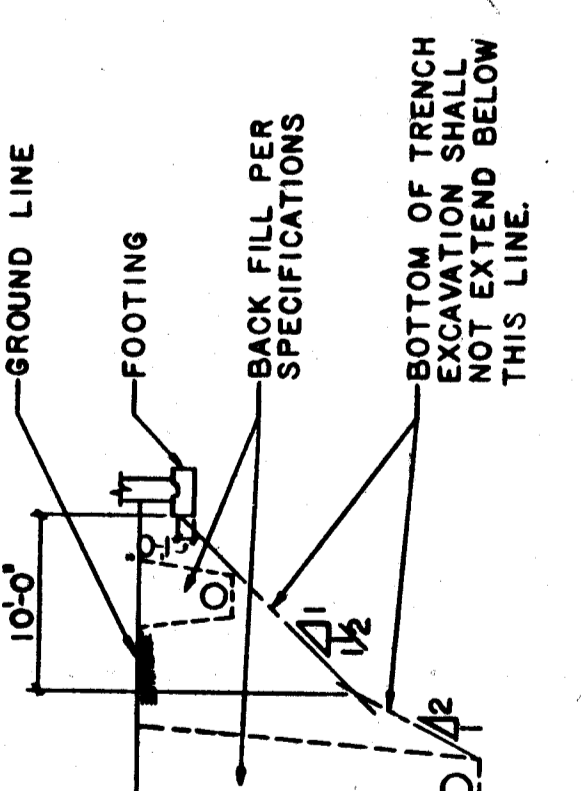
25 TYPICAL EXPANSION JOINT DETAIL AT SLAB-ON-GRADE
N.T.S.



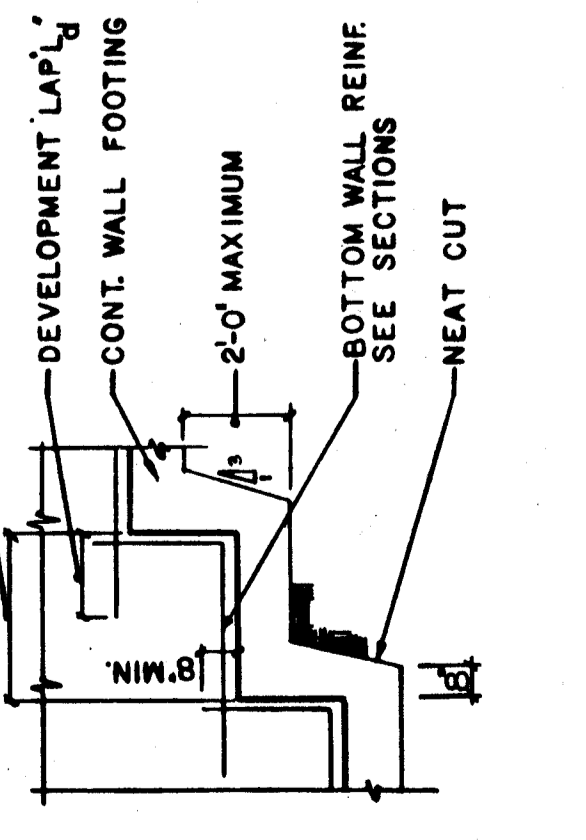
26 FORM BARS AT EDGE CONDITION
N.T.S.



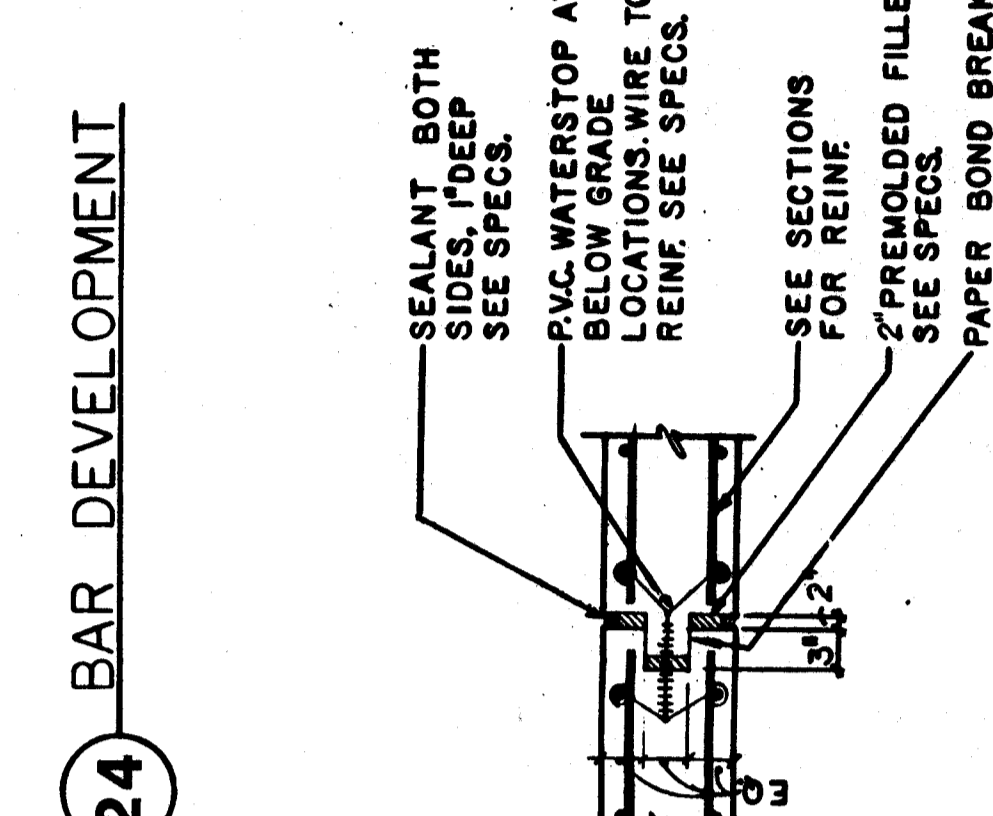
27 TYPICAL JOIST TAPER DETAIL
N.T.S.



28 TRANSVERSE SLAB REINFORCING
N.T.S.



29 SLOOP SHELF
N.T.S.



30 WALL EXPANSION JOINT
N.T.S.

RECORD DRAWINGS 6/15/94

GENERAL NOTES AND DETAILS

Environmental Improvements
Patient and NHC Buildings

Perkins & Will
Architects, Engineers, Planners,
Interior & Graphic Designers
Two North LaSalle Street
Chicago, Illinois 60602

Approved Project Director
Edward M. Grode

DATE: JUN 13 1988
DRAWING NO. 556-865
SHEET 3-61
VAMC NORTH CHICAGO, ILLINOIS

SECTION SYMBOL KEY: SECTION NO. 18 DRAWING SHEET 18 DRAWING