

- THE ABRASIVE BLASTING CONTAINMENT SYSTEMS UTILIZED ON THIS PROJECT ARE REQUIRED TO LIMIT WORKER EXPOSURE TO LEAD CONCENTRATIONS TO 50 MICROGRAMS OR LESS OVER AN 8-HOUR PERIOD. THIS PERMISSIBLE EXPOSURE LIMIT (PEL) WILL BE ACHIEVED THROUGH IMPLEMENTATION OF PROPER ENGINEERING CONTROLS AND WORK PRACTICES. IF THE PEL CANNOT BE REASONABLY ACHIEVED BY THESE MEANS, APPROPRIATE RESPIRATORY PROTECTION MUST BE UTILIZED AS A SUPPLEMENTARY MEASURE IN ORDER TO MEET THE PEL.
- THE CONTRACTOR WILL UTILIZE HAT-MOUNTED LIGHTS AND SPOTLIGHTS MOUNTED ON THE BLAST NOZZLES TO PROVIDE LIGHT FOR ABRASIVE BLASTING, PAINTING AND INSPECTION. IN THE EVENT THE LIGHTING LEVEL WITHIN THE CONTAINMENT DROPS BELOW THE MINIMUM REQUIRED 10 FOOT-CANDLES (535 LX) FOR WORK OPERATIONS AND/OR 30 FOOT-CANDLE (1605 LX) FOR INSPECTION, AN AUXILIARY LIGHTING SYSTEM COMPRISED OF MULTIPLE LAMPS WILL BE INSTALLED WITHIN THE CONTAINMENT TO MEET THE MINIMUM REQUIREMENTS.
- A MULTI-STAGE DECONTAMINATION TRAILER WILL BE PROVIDED FOR THE DURATION OF THIS PROJECT, AND WILL BE LOCATED AT AN APPROPRIATE SITE DETERMINED IN THE FIELD.
- ALL SPENT ABRASIVES AND PAINT DEBRIS SHALL BE CONSIDERED HAZARDOUS, AND SHALL BE DISPOSED OF IN ACCORDANCE WITH AL FEDERAL, STATE AND LOCAL REGULATIONS.
- AT THE END OF EACH WORK DAY, THE CONTRACTOR SHALL THOROUGHLY COLLECT AND REMOVE ALL SPENT ABRASIVES AND WASTE DEBRIS GENERATED DURING HIS OPERATIONS.
- ALL PAINT REMOVAL WASTE GENERATED DURING THIS PROJECT SHALL BE STORED AT AN OWNER APPROVED SITE. ALL WASTE DEBRIS SHALL BE SEALED IN 55 GALLON DRUMS AND COVERED WITH TARPULINS. BULK CONTAINERS MAY ONLY BE USED IF THE HAZARDOUS WASTE IS PACKAGED IN SEALED BAGS PRIOR TO DUMPING INTO THE BULK CONTAINERS. THE STORAGE SITE SHALL BE LOCATED SO AS NOT TO IMPOSE A TRAFFIC AND/OR SAFETY HAZARD. THE DESIGNATED AREA SHALL BE PROPERLY DRAINED AND RUN-OFF WILL NOT BE PERMITTED TO POND AROUND OR NEAR THE SEALED WASTE CONTAINERS.
- MAINTENANCE AND PROTECTION OF TRAFFIC DURING THIS PROJECT SHALL BE PROVIDED IN ACCORDANCE WITH THE CONTRACT SPECIFICATIONS AND TRAFFIC CONTROL PLANS INCLUDED AS PART OF THE CONTRACT PROPOSAL. LANE CLOSURES SHALL BE PERFORMED IN ACCORDANCE WITH THE SPECIFIED LANE RESTRICTIONS.
- THE SUSPENDED PLATFORM AND/OR CONTAINMENT DRAWINGS WILL WORK IN CONJUNCTION WITH THE APPROVED TRAFFIC CONTROL PLANS (SUBMITTED SEPARATELY). THE CONTRACTOR SHALL COORDINATE THE DIFFERENT PHASES OF HIS WORK AND ALL LANE CLOSINGS WITH THE ENGINEER.

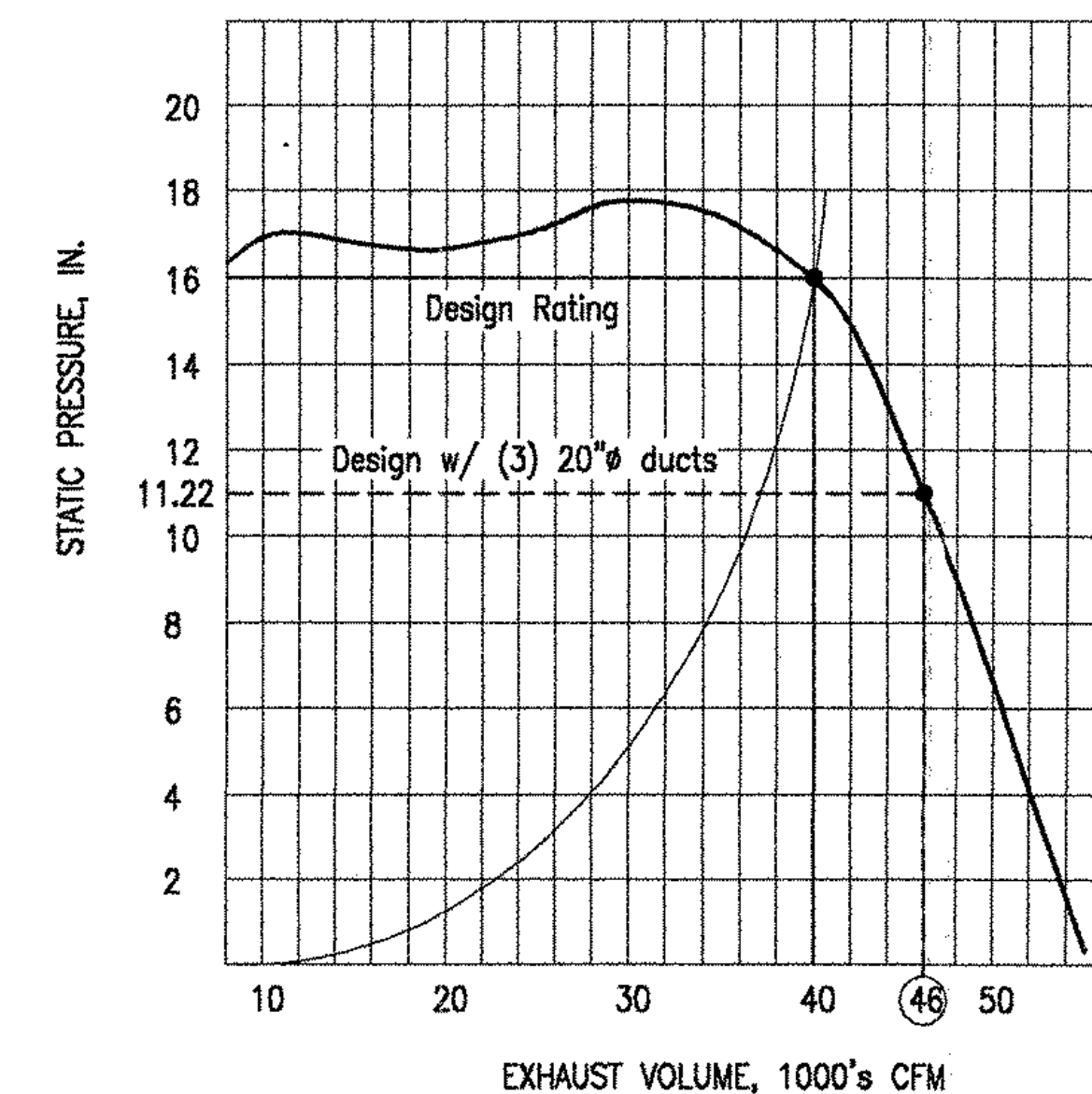
B. CONTAINMENT ENCLOSURE

- ALL ABRASIVE BLASTING CONTAINMENTS WILL BE CONSTRUCTED OF 100% IMPERMEABLE, FIRE RESISTANT TARPULINS, INCLUDING GROUND COVER, SIDEWALLS AND ENDWALLS. ADJACENT TARPULIN PANELS WILL BE FASTENED TOGETHER BY ROLLING AND CLAMPING OR BY CLAMPING LUMBER STRIPPING TO CREATE A CONTINUOUS SEAL (TAPE AND/OR CAULKING, AS REQ'D). A MINIMUM 24" OVERLAP SHALL BE USED BETWEEN TARPULINS.
- DUE TO EXISTING SITE CONDITIONS, MINOR FIELD MODIFICATIONS FROM THE SUBMITTED CONTAINMENT PLANS MAY BE REQUIRED. MODIFICATIONS MAY INCLUDE EXACT LOCATIONS OF THE BULKHEADS AND/OR DUCTWORK, LOCATION OF EQUIPMENT, AND OVERALL ENCLOSURE DIMENSIONS. ANY FIELD MODIFICATION SHALL NOT SIGNIFICANTLY ALTER THE OVERALL DIMENSIONS AND/OR OPERATION OF THE PROPOSED SYSTEM DESIGN.
- THE UPPER PORTIONS OF EACH CONTAINMENT SHALL BE SEALED ALONG EACH SIDE AND BETWEEN THE BRIDGES AS DETAILED ON DWG D-2. THE CONTRACTOR MAY UTILIZE ANY APPROPRIATE METHOD AVAILABLE TO PROPERLY SEAL THE UPPER CONTAINMENT AGAINST DUST EMISSIONS (ABRASIVE BLASTING) AND/OR RELEASE OF WATER (WASHING OPERATIONS).
- FOR BRIDGE-TO-GRADE TYPE CONTAINMENTS (IF UTILIZED), THE BASE OF THE VERTICAL TARPULIN WALLS WILL BE SEALED AROUND THE ENTIRE PERIMETER USING SANDBAGS OR SIMILAR WEIGHTS. FOR HIGHLY ELEVATED STRUCTURES, THE CONTRACTOR MAY UTILIZE VERTICAL CABLES SUPPORTED BY 55-GALLON DRUMS FILLED WITH CONCRETE OR GRAVEL TO AID IN SUPPORTING THE VERTICAL TARPULIN WALLS.
- FOR SUSPENDED PLATFORM ENCLOSURES (IF UTILIZED), THE BASE OF THE TARPULIN WALLS WILL BE SECURED TO THE PLATFORM AND ADEQUATELY SEALED AROUND THE ENTIRE PERIMETER OF THE ENCLOSURE, USING APPROPRIATE METHODS, TO PROPERLY SEAL THE CONTAINMENT AGAINST EMISSIONS.
- THE AREAS BETWEEN THE BRIDGE MEMBERS (I.E., GIRDERS, STRINGERS, CHORDS) AT EACH END OF THE CONTAINMENTS WILL BE CLOSED USING 2"x4" LUMBER FRAMING COVERED WITH RIGID PLYWOOD PANELS OR TARPULINS. REFER TO THE GIRDER BAY ENCLOSURE DETAIL ON DWG D-2.
- IF WATER-WASHING IS TO BE PERFORMED PRIOR TO BLAST CLEANING, THE CONTAINMENTS MAY UTILIZE 85% TARPULIN MATERIALS (MESH OR SCREEN) TO CONSTRUCT THE SIDE-WALLS AND END-WALLS. 100% WATER-RESISTANT GROUND TARPULINS SHALL BE INSTALLED OVER THE ENTIRE AREA OF EACH CONTAINMENT TO CONTAIN THE WASTEWATER AND ALLOW FOR VACUUMING.
- IN ORDER TO PREVENT DAMAGE AND/OR FAILURE OF THE TARPULIN CONTAINMENT SYSTEMS, THE MAXIMUM WIND VELOCITY UNDER WHICH ABRASIVE BLASTING OPERATIONS MAY BE PERFORMED SHALL NOT EXCEED 40 MPH, OR AS SPECIFIED IN THE CONTRACT DOCUMENTS. IF WINDS IN EXCESS OF 40 MPH ARE FORE-CASTED, THE PAINT REMOVAL OPERATIONS WILL BE SUSPENDED AND THE TARPULIN WALLS DISMANTLED, ROLLED AND SECURED IN-PLACE.
- WHEN ABRASIVE BLASTING IS PERFORMED NEAR THE TARPULIN WALLS OF THE ENCLOSURE, THE ABRASIVE BLAST SHOULD BE DIRECTED AWAY FROM THE TARP WALL TO REDUCE THE POTENTIAL FOR DAMAGING THE ENCLOSURE. WHEN WORK IS PERFORMED NEAR AN INLET OPENING, THE OPENING SHALL BE TEMPORARILY SEALED TO MINIMIZE THE POTENTIAL FOR EMISSIONS.
- CONSTRUCTION OF ALL TARPULIN CONTAINMENTS WILL BE DONE IN SUCH A MANNER TO DIRECT THE TOTAL FLOW OF AIR TO PASS THROUGH THE ENTIRE LENGTH OF THE CONTAINMENT. THE TARPULIN SIDEWALLS AND FLOORING MUST BE SEALED IN A SUFFICIENT MANNER TO PREVENT EXCESSIVE LEAKS BETWEEN PANELS. THE ENDS OF THE CONTAINMENT MUST BE SEALED WITH PLYWOOD OR TARPULIN BULKHEADS TO PREVENT SHORT-CIRCUITING OF AIR DIRECTLY TO THE EXHAUST DUCTS.

C. VENTILATION SYSTEM

- THE CONTRACTOR WILL PROVIDE MECHANICAL EXHAUST VENTILATION FOR THE ABRASIVE BLASTING CONTAINMENTS USING ONE OR MORE MOBILE DUST COLLECTORS. REFER TO THE FAN CURVE AND SYSTEM STATIC PRESSURE CALCULATIONS ON THIS DRAWING FOR THE ESTIMATED EXHAUST CAPACITY USED TO SIZE THE ABRASIVE BLASTING CONTAINMENTS FOR THIS PROJECT.
- THE MAIN OBJECTIVES FOR UTILIZING NEGATIVE AIR EXHAUST VENTILATION IS TO CONTAIN AIRBORNE PARTICULATE WITHIN THE CONTAINMENT AND PROVIDE AIRFLOW THROUGH THE WORK AREAS. FOR THE ABUTMENT SPAN CONTAINMENTS (IF APPLICABLE), PLACING THE EXHAUST DUCTS AT THE ABUTMENT WALLS AT RELATIVELY THE SAME ELEVATION AS THE INLET AIR OPENINGS BETWEEN THE GIRDERS WILL IMPROVE VENTILATION BY PROVIDING INCREASED AIRFLOW THROUGH THE WORK AREAS.
- CROSS-DRAFT (HORIZONTAL) VENTILATION DESIGNED FOR 100 FT/MIN AND/OR DOWN-DRAFT (VERTICAL) VENTILATION DESIGNED FOR 60 FT/MIN WILL BE PROVIDED THROUGH EACH OF THE ABRASIVE BLASTING CONTAINMENTS. AIR WILL BE DRAWN INTO EACH ACTIVE ENCLOSURE THROUGH PASSIVE INLET AIR OPENINGS OR FORCED-AIR (COMPRESSED AIR HORNS) PROVIDED AT THE OPPOSITE END OF THE CONTAINMENT FROM THE EXHAUST DUCTS.
- ALTHOUGH SSPC RECOMMENDS A MINIMUM DOWN-DRAFT VELOCITY OF 60 FT/MIN FOR CONTAINMENTS UP TO 400 SQ.FT, THE GUIDELINES ALSO PERMIT A REDUCTION IN THE AIRFLOW VELOCITY AS THE PLAN VIEW AREA OF THE CONTAINMENT INCREASES (REFER TO SECTION 5.4.4.1 OF SSPC GUIDE 6). IN THE EVENT THE PROPOSED PLAN VIEW AREAS OF THE CONTAINMENTS TO BE INSTALLED ON THIS PROJECT ARE GREATER THAN THE SPECIFIED 400 SQ.FT, A REDUCED DOWN-DRAFT AIRFLOW VELOCITY MAY BE SUFFICIENT TO PROVIDE PROPER VENTILATION.
- IN THE EVENT THE EXHAUST VENTILATION SYSTEM IS UNABLE TO ADEQUATELY REMOVE AIRBORNE PARTICULATE AND/OR CONTAIN THE DUST GENERATED DURING BLASTING, INTERNAL TARPULIN DIVIDER WALLS CLAMPED TO THE BOTTOM FLANGES OF THE BRIDGE GIRDERS MAY BE REQUIRED TO SEGMENT THE MAIN CONTAINMENT INTO SMALLER "ACTIVE" ENCLOSURES. THE REDUCED CROSS-SECTIONAL AREA WILL RESULT IN AN INCREASED AIRFLOW VELOCITY THROUGH THE WORKING ENCLOSURE.
- IN LIEU OF SEGMENTING THE MAIN CONTAINMENT INTO SMALLER ENCLOSURES (PERVIOUS NOTE), THE CONTRACTOR MAY OPT TO INCREASE THE CAPACITY OF EXHAUST VENTILATION BY UTILIZING ADDITIONAL DUST COLLECTORS AND FLEXIBLE EXHAUST DUCTS.
- AIRFLOW THROUGH THE WORK AREAS MAY BE IMPROVED BY INSTALLING THE EXHAUST DUCTS AND INLET AIR OPENINGS AT APPROXIMATELY THE SAME ELEVATION NEAR / WITHIN THE BRIDGE STEEL. THIS CONFIGURATION WILL RESULT IN A GREATER AIRFLOW VELOCITY PAST THE WORKERS AND THROUGH THE BRIDGE STEEL, WHICH IS WHERE THE ELEVATED VELOCITY IS DESIRED TO REDUCE WORKER EXPOSURE TO AIRBORNE PARTICULATE.

D. ENTECH INC. MODEL ET-40 MOBILE DUST COLLECTOR

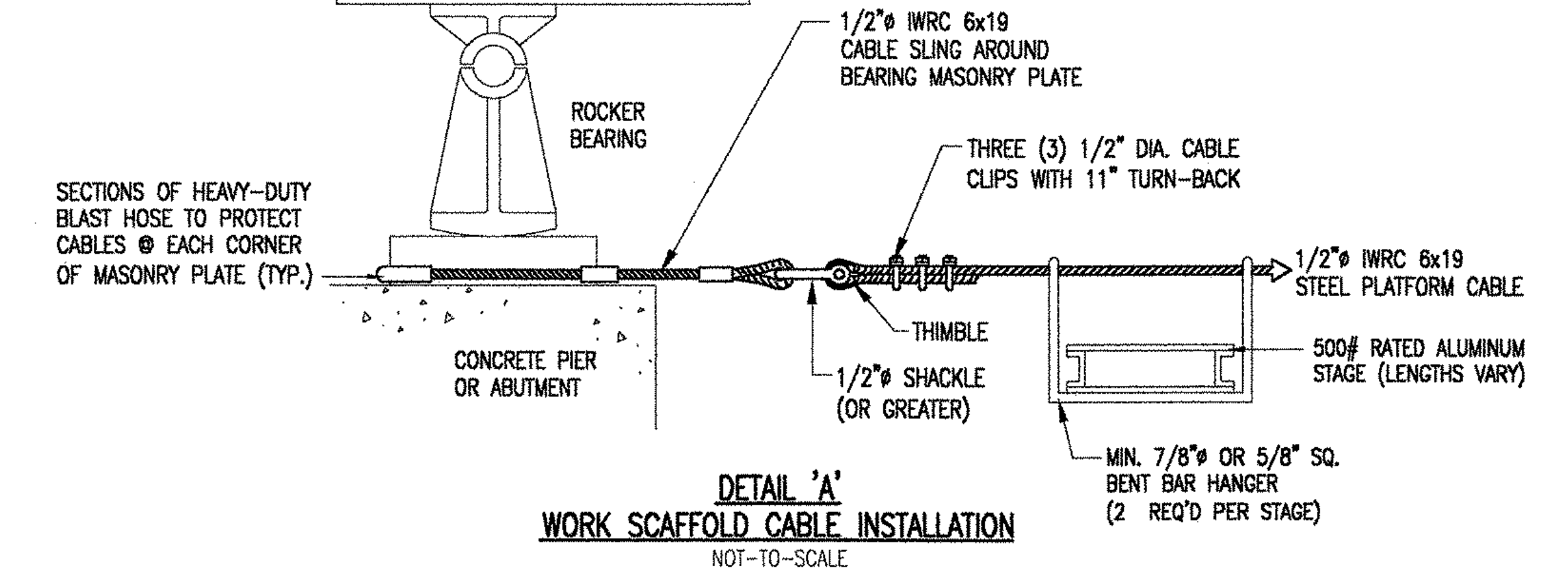


SYSTEM STATIC PRESSURE ESTIMATE

BASED ON (3) 20" DIA. EXHAUST DUCTS @ 15,333 CFM PER DUCT

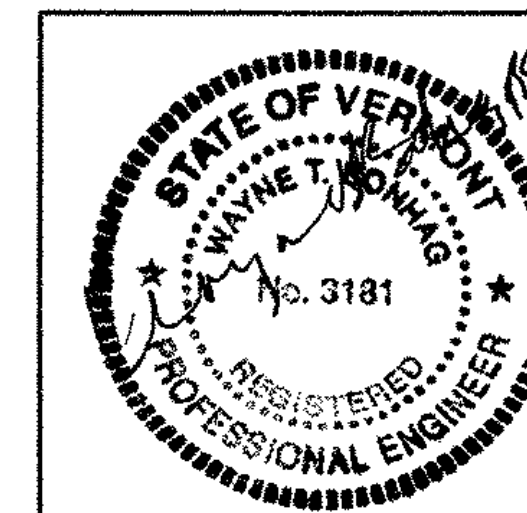
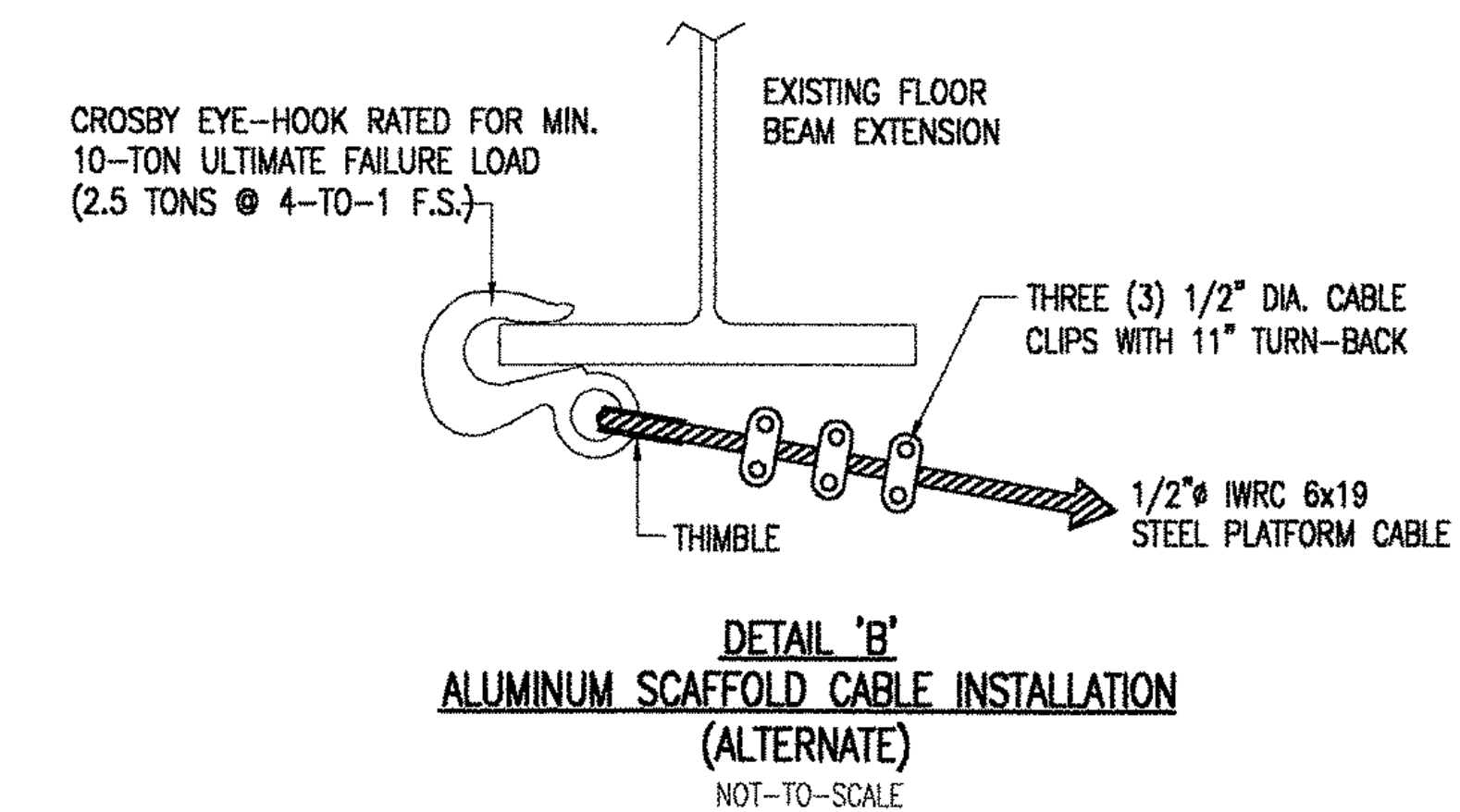
- * 50-FT SECTION OF 20" DIA. DUCT @ 2.87"/100' 1.44" W.G.
- * (3) 90° ELBOWS @ 46 EQUIV. L.F. EACH 3.96" W.G.
- * LOSS THRU CONTAINMENT 1.82" W.G.
- * LOSS THRU FABRIC FILTERS 4.00" W.G.

TOTAL ESTIMATED SYSTEM STATIC PRESSURE 11.22" W.G.
TOTAL AVAILABLE EXHAUST CAPACITY 46,000 CFM



WORK SCAFFOLD CABLE DESIGN

- ALL WORK SCAFFOLD SUPPORT CABLES, INCLUDING HORIZONTAL CABLES, CABLE CHOKER HANGERS AND BEARING PLATE ATTACHMENT SLINGS SHALL BE MIN. 1/2" DIA. IWRC 6x19 IMPROVED FLOW STEEL WITH A DESIGN BREAKING STRENGTH OF 11.5 TONS.
- HORIZONTAL CABLES SHALL BE SUPPORTED FROM THE BRIDGE CROSS-BRACING AND/OR DIAPHRAGMS AT 25'-0" MAXIMUM INTERVALS AND INSTALLED WITH A MINIMUM SAG OF 7" BETWEEN HANGERS.
- SHACKLES FOR THE HORIZONTAL SUPPORT CABLES AND CABLE CHOKER HANGERS SHALL BE MINIMUM 1/2" DIA. WITH A WORKING LOAD OF 2 TONS (12 TONS ULTIMATE LOAD).
- ALL CABLES AND SHACKLES TO BE INSTALLED IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS. DESIGN OF CABLE SUPPORT SYSTEM INCLUDES ALL OSHA SAFETY FACTORS REQUIRED FOR SUSPENDED SCAFFOLDING. REFER TO DETAIL ABOVE FOR TYPICAL SCAFFOLD SUPPORT CABLE INSTALLATION.
- MIN. 5/16" DIA. IWRC WORKER SAFETY TIE-OFF CABLES (MIN. 5000# RATING) AND WORKER HARNESSES WILL BE UTILIZED DURING ALL WORK, IN ACCORDANCE WITH THE LATEST OSHA GUIDELINES. SAFETY TIE-OFF CABLES SHALL BE INSTALLED AT MAX. 12'-0" SPACINGS.



CD Containment Design, Inc.
1280 Prospect Road • Pittsburgh, PA 15227 • Phone: (412) 882-9046 • Fax: (412) 884-8091

NORTH STAR PAINTING COMPANY

STATE OF VERMONT AGENCY OF TRANSPORTATION
CONTRACT IR 089-1(13) WINDSOR COUNTY
ABRASIVE BLASTING CONTAINMENT PROPOSAL

GENERAL CONTAINMENT SPECIFICATIONS 121

CDI JOB NO. 21-11	DATE 1-22-00	DWG. NO. D-1	0
----------------------	-----------------	-----------------	---

P.E. SEAL