

ARCHITECTURAL GENERAL SPECIFICATIONS:

4.0 CONCRETE FLOOR SLAB:

- REMOVE ALL REMAINING EXISTING FLOOR FINISHES AND FLOOR STRIPING "TAPE OR PAINT" COMPLETELY. GRIND, SCRAPE ALL FLOOR AREAS AS REQUIRED AND PREPARE FLOOR SURFACE TO RECEIVE NEW SCHEDULED FINISHES. LEVEL OFF ALL FLOOR SLAB AREAS WHERE UNEVEN.
- COLOR AND FINISH OF PATCHING FOR CONCRETE FLOOR SLAB SURFACES TO MATCH ADJACENT EXISTING SURFACE CONCRETE COLOR.
- CONCRETE FLOOR SAW-CUT INFILL AREAS SHOWN ON DEMOLITION PLAN FOR SAW-CUTS OF EXISTING FLOOR INFILL FLOOR AREAS WITH THE APPROVED CONCRETE SPECIFICATIONS / DETAIL SHOWN ON STRUCTURAL DRAWINGS. IF STRUCTURAL IS NOT PART OF THE CURRENT CONSTRUCTION DOCUMENTS, REFER TO ARCHITECTURAL DRAWINGS FOR SPECIFICATIONS / DETAIL. NEW CONCRETE COLOR AND FINISH TO MATCH ADJACENT CONCRETE AND LEVEL WITH A CLEAN SMOOTH TRANSITION BETWEEN EXISTING AND NEW. REFER TO FLOOR PLANS FOR LOCATIONS OF NEW CONCRETE SLAB INFILL AREAS.
- POLISHED CONCRETE FINISH: PROVIDE POLISHED CONCRETE FINISHING SYSTEM WHERE INDICATED ON ROOM FINISH SCHEDULE "F-1". REFER TO SECTION 4.1 CONCRETE FLOOR SLAB - POLISHED CONCRETE FINISHING ON THIS SHEET.
- SEALED INTERIOR CONCRETE FLOOR SLAB, EXISTING AND NEW CONCRETE FLOOR SLAB ARE TO RECEIVE A TWO-COAT APPLICATION OF A PENETRATING LOW VISCOSITY ACRYLIC CLEAR SEAL AS SHOWN ON ROOM FINISH SCHEDULE "F-2". REFER TO SECTION 4.1 CONCRETE FLOOR SLAB - POLISHED CONCRETE FINISHING ON THIS SHEET.

4.1 CONCRETE FLOOR SLAB - POLISHED CONCRETE FINISHING:

PART 1 - GENERAL

1.01 SUMMARY

- A. PROVIDE POLISHED CONCRETE FINISHING SYSTEM WHERE INDICATED ON DRAWINGS. COMPLETE THIS SECTION INCLUDES THE FOLLOWING:
- CONCRETE FLOOR SUBSTRATE GRINDING TO SPECIFIED FINISH.
 - APPLYING SEALER, HARDENER AND DENSIFIER AND PERFORMING GRINDING AND POLISHING TO SPECIFIED FINISH.
 - APPLICATION OF PROTECTIVE SEALER AND STAIN INHIBITOR AND POLISHING TO SPECIFIED FINISH.
- B. SPECIAL NOTE: PRODUCTS, MATERIALS, TOLERANCES AND INSTALLATION REQUIREMENTS SPECIFIED UNDER THIS SECTION SHALL GOVERN OVER REQUIREMENTS SPECIFIED IN OTHER RELATED SECTIONS. COORDINATE WITH POLISHED CONCRETE FINISH LOCATIONS INDICATED ON DRAWINGS.

1.02 SUBMITTALS

- A. TEST REPORTS: UPON REQUEST PROVIDE SHEEN GLOSS READING TEST RESULTS CONDUCTED AS SPECIFIED AND RECORDED ON FLOOR PLAN DIAGRAM CONFIRMING COMPLIANCE WITH SPECIFIED PERFORMANCE CRITERIA.
- B. WARRANTY: PROVIDE 10 YEAR PRODUCT MANUFACTURER'S WARRANTY AGREEING TO REPLACE AND REPAIR DEFECTIVE MATERIALS THAT MAY OCCUR WITHIN THE WARRANTY PERIOD AT NO COST TO THE OWNER.
- C. INSTALLER'S CERTIFICATION: PROVIDE LETTER DOCUMENTING INSTALLER'S ACCREDITATION AND CERTIFICATION COMPLIANCE AS SPECIFIED UNDER QUALITY ASSURANCE.

1.03 QUALITY ASSURANCE

- A. THE FOLLOWING SPECIFICATIONS ARE PROVIDED AS A GUIDE TO THE MINIMUM "POLISHING/GRINDING STEPS" AND LIQUID DENSIFIER/SEALER APPLICATIONS REQUIRED. IT IS THE CONTRACTOR/INSTALLER'S ULTIMATE RESPONSIBILITY TO PROVIDE A DIAMOND POLISHED/GROUND FLOOR MEETING THE SPECIFIED CRITERIA. IN ALL CASES THE SPECIFIED SURFACE PREPARATION AND CLEANING STEPS, THE MINIMUM NUMBER OF SPECIFIED DIAMOND POLISHING/GRINDING STEPS, THE SPECIFIED APPLICATIONS OF LIQUID DENSIFIER AND CONCRETE STAIN INHIBITOR/SEALER SHALL BE PERFORMED.
- B. COMPLY WITH GOVERNING CODES AND REGULATIONS. PROVIDE PRODUCTS OF ACCEPTABLE MANUFACTURERS WHICH HAVE BEEN IN SATISFACTORY USE IN SIMILAR SERVICE FOR THREE YEARS.
- C. INSTALLER'S CERTIFICATION:
- CONTACT MANUFACTURERS SPECIFIED FOR LISTING OF APPROVED CERTIFIED INSTALLERS.
 - USE EXPERIENCED INSTALLERS WHO HAVE SUCCESSFULLY PERFORMED A MINIMUM OF 5 PROJECTS OF AT LEAST 6000 SQUARE FEET EACH. UPON REQUEST PROVIDE LISTING OF PROJECTS AND CONTACT REFERENCES.
 - UPON REQUEST PROVIDE LETTER OF CERTIFICATION FROM MANUFACTURER STATING THAT INSTALLER IS CERTIFIED APPLICATOR OF POLISHED CONCRETE FINISHING SYSTEM SPECIFIED AND IS FAMILIAR WITH PROPER PROCEDURES AND INSTALLATION REQUIREMENTS REQUIRED BY THE MANUFACTURER.
- D. DELIVER, HANDLE, AND STORE MATERIALS IN ACCORDANCE WITH MANUFACTURER'S INSTRUCTIONS. MAINTAIN RECORDS OF PRODUCT CONTAINER NUMBERS.
- E. STANDARDS: COMPLY WITH THE PROVISIONS OF THE FOLLOWING SPECIFICATIONS AND STANDARDS, EXCEPT AS OTHERWISE NOTED OR SPECIFIED, OR AS ACCEPTED OR DIRECTED BY THE ARCHITECT.
- ASTM E 1195, STANDARD TEST METHOD FOR DETERMINING FLOOR FLATNESS AND LEVELNESS USING THE F NUMBER SYSTEM.
 - ASTM E 430, STANDARD TEST METHODS FOR MEASUREMENT OF GLOSS OF HIGH-GLOSS SURFACES BY ABRIDGED GONIOPHOTOMETRY.
 - ASTM G23-81, STANDARD TEST METHOD FOR ULTRAVIOLET LIGHT AND WATER SPRAY RESISTANCE.
- F. FINISH AND APPEARANCE QUALITY STANDARDS PER CONCRETE POLISHING ASSOCIATION OF AMERICA (CPAA):
- CLASS LEVEL OF CUT / AGGREGATE EXPOSURE BASED ON THE FOLLOWING CRITERIA:
 - CLASS A - CREAM: POLISHING ONLY THE PORTLAND PASTE AT THE SURFACE OF THE SUBSTRATE WITHOUT EXPOSING SMALL, MEDIUM OR LARGE AGGREGATE.
 - CLASS B - SALT/PEPPER: EXPOSING THE FINE AGGREGATE SUCH AS SAND AND SMALL AGGREGATE WITHIN THE SUBSTRATE. THE DEPTH OF GRIND WILL DEPEND GREATLY ON PLACEMENT AND FINISHING PROCEDURES. GENERALLY THIS LEVEL OF GRIND CAN BE ACHIEVED WITHIN 1/16 INCH OF THE SURFACE.
 - CLASS C - MEDIUM AGGREGATE: EXPOSING MORE OF THE OVERALL GIRTH OF THE AGGREGATE WITHIN THE SUBSTRATE. THE DEPTH OF GRIND WILL DEPEND GREATLY ON THE PLACEMENT AND FINISHING PROCEDURES. GENERALLY THIS LEVEL OF GRIND CAN BE ACHIEVED WITHIN 1/8 INCH OF THE SURFACE.
 - CLASS D - LARGE AGGREGATE: EXPOSING THE OVERALL GIRTH OF THE AGGREGATE WITHIN THE SUBSTRATE. THE DEPTH OF GRIND WILL DEPEND GREATLY ON THE PLACEMENT AND FINISHING PROCEDURES. GENERALLY THIS LEVEL OF GRIND CAN BE ACHIEVED WITHIN 1/4 INCH OF THE SURFACE.
 - LEVEL OF SHEEN PER ASTM E 430 WHEN THE CONCRETE SURFACE IS MECHANICALLY PROCESSED. GLOSS READINGS ARE NOT TO BE OBTAINED THROUGH THE USE OF ANY MICROCRYSTALLINE PRODUCTS, SEALERS, COATING ENHANCERS OR THE RESULT OF RESIN TRANSFER PRODUCTS AND ABRASIVES. READINGS SHALL BE TAKEN NOT LESS THAN 10' ON CENTER FIELD AREA AND WITHIN 1' OF FLOOR AREA PERIMETERS. IN NO CASE SHALL A READING BE BELOW ANY OF SPECIFIED MINIMUM SHEEN.
 - LEVEL 1 SHEEN (FLAT) APPEARANCE WITH NO TO VERY SLIGHT DIFFUSED REFLECTION.
 - LEVEL 2 SHEEN (SATIN) AS DETERMINED BY GLOSS READING OF 45-90 BEFORE APPLICATION OF SPECIFIED CONCRETE STAIN INHIBITOR AND SEALER. NOT LESS THAN 5 STEPS TO SHEEN PROCESS CONCLUDING WITH 800 GRIT RESIN BONDED TOOLING.
 - LEVEL 3 SHEEN (SEMI-GLOSS) AS DETERMINED BY GLOSS READING OF 60-70 BEFORE APPLICATION OF SPECIFIED CONCRETE STAIN INHIBITOR AND SEALER. NOT LESS THAN 6 STEPS TO SHEEN PROCESS CONCLUDING WITH 1500 GRIT RESIN BONDED TOOLING.
 - LEVEL 4 SHEEN (HIGH GLOSS) AS DETERMINED BY GLOSS READING OF 70 OR HIGHER BEFORE APPLICATION OF SPECIFIED CONCRETE STAIN INHIBITOR AND SEALER. NOT LESS THAN 7 STEP PROCESS CONCLUDING WITH 3000 GRIT RESIN BONDED TOOLING.

PART 2 - PRODUCTS

- 2.01 PROJECT SYSTEM PERFORMANCE AND OPERATIONAL CRITERIA
- A. CONCRETE MIX COLLECTOR MATERIAL WITH UV INHIBITORS AND STAIN RESISTANT ADDITIVES.
- B. QUALITY CLASS LEVEL OF CUT CLASS C - MEDIUM AGGREGATE.
- C. GLOSS LEVELS: SHEEN LEVEL 2. SATIN POLISHED WITH 800 GRIT MINIMUM, GLOSS READING 45-60 PER ASTM E 430.
- D. ULTRAVIOLET LIGHT AND WATER RESISTANT: ASTM G23-81 - NO ADVERSE EFFECT TO ULTRAVIOLET AND WATER.
- 2.02 MATERIALS AND MANUFACTURERS
- A. GENERAL
- COMPATIBILITY: PROVIDE PRODUCTS WHICH ARE RECOMMENDED BY MANUFACTURERS TO BE FULLY COMPATIBLE WITH PROJECT SUBSTRATE CONDITIONS AND SPECIAL CONCRETE FLOOR FINISH MATERIALS, MEANS AND METHODS.
 - PROVIDE SPECIAL CONCRETE FLOOR FINISH PRODUCTS FROM A SINGLE MANUFACTURER UNLESS OTHERWISE APPROVED.
 - ALL PRODUCTS USED SHALL COMPLY WITH ENVIRONMENTAL PROTECTION AGENCY (EPA) VOLATILE ORGANIC COMPOUND (VOC) EVAPORATION REQUIREMENTS.

4.1 CONCRETE FLOOR SLAB - POLISHED CONCRETE FINISHING (CONT.):

- B. SEALER, HARDENER AND DENSIFIER PRODUCTS
- MANUFACTURERS: CONTACT MANUFACTURERS FOR LISTING OF CERTIFIED INSTALLERS OF SPECIAL PRODUCTS:
 - ADVANCED FLOORING PRODUCTS, 888-942-3144.
 - EUCUID CHEMICAL COMPANY, 800-321-7628.
 - L & M CONSTRUCTION CHEMICALS, 800-362-3331.
 - L. M. SCOFIELD COMPANY, 800-800-9900.
 - PROSOCO INC., 800-255-4255.
 - CONCRETE SEALER, HARDENER AND DENSIFIER, ADVANCED FLOORING PRODUCTS "RETROPLATE 99": EUCUID "EUCO DIAMOND HARD", L&M "FGS HARDENER PLUS", L. M. SCOFIELD COMPANY "FORMULA ONE LITHIUM DENSIFIER MP, PROSOCO "CONSOLIDECK LS" OR APPROVED EQUAL.
 - CONCRETE STAIN INHIBITOR AND SEALER, ADVANCED FLOORING PRODUCTS "RETROGUARD STAIN INHIBITOR AND SEALER", EUCUID "EUCO DIAMOND HARD", L&M "PERMAGUARD SPS", L. M. SCOFIELD COMPANY "FORMULA ONE GUARD-W", PROSOCO "CONSOLIDECK CONCRETE PROTECTOR", OR APPROVED EQUAL.
- C. AUXILIARY MATERIALS
- WATER: POTABLE.
 - JOINT SEALANTS: SEMI-RIGID, 2-COMPONENT, SELF-LEVELING, 100% SOLIDS, RAPID CURING, POLYUREA CONTROL AND EXPANSION JOINT FILLER WITH SHORE A 80 OR HIGHER HARDNESS. MATERIALS AND PRODUCTS SHALL BE COMPATIBLE WITH SPECIAL CONCRETE FLOOR FINISH SYSTEM. USE COLOR THAT MATCHES ADJACENT SURFACE FINISH.
 - GRINDING AND POLISHING: PROVIDE OTHER RELATED MATERIALS AS RECOMMEND BY MANUFACTURER, NOT SPECIFICALLY DESCRIBED, BUT REQUIRED FOR COMPLETE AND PROPER SYSTEM INSTALLATION.
 - CLEANING AND PREPARATION AGENTS: PRODUCTS RECOMMENDED BY MANUFACTURER FOR PROJECT CONDITIONS.
 - PROTECTION MATERIALS: PRODUCTS RECOMMENDED BY MANUFACTURER FOR PROJECT CONDITIONS.

PART 3 - EXECUTION

3.01 PROJECT CONDITIONS

- A. ENVIRONMENTAL REQUIREMENTS
- COMPLY WITH MANUFACTURER'S WRITTEN INSTRUCTION FOR SUBSTRATE TEMPERATURE AND MOISTURE CONTENT, AMBIENT TEMPERATURE AND HUMIDITY, VENTILATION AND OTHER CONDITIONS DURING INSTALLATION AND PERFORMANCE OF SPECIAL CONCRETE FLOOR FINISH.
 - COORDINATE SCHEDULING WITH OWNER TO PROVIDE COMPLETION OF INSTALLATION OF SPECIAL CONCRETE FLOOR FINISH PRIOR TO 10 DAYS MINIMUM OF INSTALLATION OF RACKING AND EQUIPMENT FOR AN UNINHIBITED CONTINUOUS APPLICATION OF FINISH SYSTEM.
- B. EXAMINATION
- INSPECT SUBSTRATE AND REPORT UNSATISFACTORY CONDITIONS IN WRITING. VERIFY THAT SURFACE AND SITE CONDITIONS ARE READY TO RECEIVE WORK. CORRECT CONDITIONS DETRIMENTAL TO TIMELY AND PROPER INSTALLATION OF WORK. BEGINNING WORK MEANS ACCEPTANCE OF SUBSTRATE CONDITIONS.
 - CONCRETE MUST BE CURED FOR SUFFICIENT PERIOD RECOMMENDED BY THE SPECIAL CONCRETE FLOOR FINISH MANUFACTURER BEFORE APPLICATION CAN BEGIN.
 - COMPLY WITH SPECIAL CONCRETE FLOOR FINISH MANUFACTURER'S RECOMMENDATIONS AND INSTRUCTIONS. CLEAN, PRIME AND PREPARE SUBSTRATE SURFACES FOR PROPER INSTALLATION.
- C. TOLERANCES
- WHERE NEW OR EXISTING SUBSTRATES ARE NOT IN COMPLIANCE WITH SPECIFIED TOLERANCES PROVIDE REPAIR, GRINDING, PATCHING OR OTHER REMEDIES RECOMMENDED BY POLISHED CONCRETE FLOOR FINISH MANUFACTURER FOR PROJECT CONDITIONS AND APPROVED BY THE OWNER AND/OR ARCHITECT.
- D. PROTECTION
- PROVIDE MANUFACTURER'S APPROVED SUBSTRATE PROTECTION MATERIALS, MEANS AND METHODS TO MAINTAIN AND ENSURE SYSTEM PERFORMANCE AND APPEARANCE CRITERIA SPECIFIED.
 - AVOID SURFACE DEPOSITS OF OIL, CHEMICALS, AGENTS OR OTHER MATERIAL THAT WILL ADVERSELY AFFECT SPECIAL CONCRETE FLOOR FINISH PERFORMANCE OR APPEARANCE. NO SATISFACTORY CLEANING PROCEDURE MAY BE AVAILABLE TO REMOVE PETROLEUM STAINS FROM THE CONCRETE SURFACE. PREVENTION IS THEREFORE ESSENTIAL.
 - ALL HYDRAULIC POWERED EQUIPMENT MUST BE DIAPERED TO AVOID STAINING OF THE CONCRETE.
 - NO TRADE WILL PARK VEHICLES ON THE INSIDE SLAB. IF NECESSARY TO COMPLETE WORK, DROP CLOTHS WILL BE PLACED UNDER VEHICLES AT ALL TIMES.
 - NO PIPE CUTTING MACHINE SHALL BE USED ON THE INSIDE FLOOR SLAB.
 - DO NOT GRIND STEEL ON INTERIOR SURFACES TO AVOID RUST STAINING.
 - ALL EQUIPMENT MUST BE EQUIPPED WITH NON-MARKING TIRES.
 - DO NOT DRAG OR DROP EQUIPMENT OR MATERIAL ACROSS THE SLAB WHICH WILL SCRATCH, CHIP OR DAMAGE SURFACES.

3.02 INSTALLATION

- A. GENERAL
- INSTALL POLISHED CONCRETE FLOOR FINISHING SYSTEM PER MANUFACTURER'S RECOMMENDATIONS AND INSTRUCTIONS. USE EQUIPMENT, MEANS AND METHODS FOR PROPER INSTALLATION.
 - WHERE WALLS, COLUMNS OR SUBSTRATE PENETRATIONS ARE INSTALLED ADJACENT TO OR THROUGH POLISHED CONCRETE FLOOR FINISH AREAS, EXTEND GRINDING AND POLISHING PROCESS TO WITHIN 1" MAXIMUM DISTANCE FROM PERIMETER OF SURFACE. INTERRUPTING CONDITION BY MEANS NECESSARY FOR UNIFORM APPEARANCE WITH FINISH SURFACE AREA FINISH.
- B. CONCRETE SUBSTRATE INSTALLATION:
- NEW CONSTRUCTION.
 - COMPLY WITH SECTION 03 30 00 AND THE GOVERNING REQUIREMENTS OF THIS SECTION.
 - PROVIDE HARD STEEL TROWEL FINISH WITH A MINIMUM OF SEPARATE PASSES WITH POWER TROWEL TO ACHIEVE CLASS 5 FINISH AS DESCRIBED IN SECTION 03 30 00 WITH MINIMUM TOLERANCES SPECIFIED IN THIS SECTION.
 - PROVIDE CONCRETE CURING AND SEALING MATERIALS COMPATIBLE WITH SPECIAL CONCRETE FLOOR FINISH SYSTEM RECOMMENDED BY MANUFACTURER.
 - EXISTING CONSTRUCTION.
 - REMOVE EXISTING APPLIED FLOOR FINISH(S) INCLUDING BUT NOT LIMITED TO, CARPET, VCT, TILE, GROUT, PLASTIC, PAINT, EPOXY OR OTHER NON-CONCRETE FLOOR MATERIAL TO EXPOSE SUBSTRATE CONDITIONS BY APPROPRIATE MEANS AND METHODS NECESSARY FOR PROPER INSTALLATION OF NEW SPECIAL CONCRETE FLOOR FINISH PER MANUFACTURER'S RECOMMENDATIONS.
 - WHERE EXISTING SUBSTRATES ARE NOT IN COMPLIANCE WITH SPECIFIED TOLERANCES PROVIDE REPAIR, GRINDING, PATCHING OR OTHER REMEDIES RECOMMENDED BY SPECIAL CONCRETE FLOOR FINISH MANUFACTURER FOR PROJECT CONDITIONS AND APPROVED BY THE OWNER AND/OR ARCHITECT.
- C. CONCRETE SUBSTRATE GRINDING AND POLISHING.
- EQUIPMENT, MEANS AND METHODS RECOMMENDED BY MANUFACTURER.
 - CLEAN, POLISH AND CLEAN CONCRETE FLOOR SURFACES USING METHODS DEPENDING ON SUBSTRATE CONDITIONS TO ACHIEVE PROJECT SYSTEM PERFORMANCE AND APPEARANCE CRITERIA.
 - SCRUB AND RINSE FLOOR AND REMOVE RESIDUAL COLOR, DUST AND DEBRIS.
 - ALL GRINDING AND POLISHING PASSES SHALL BE MADE IN THE SAME DIRECTION UNTIL THE ENTIRE GIVEN AREA HAS BEEN COVERED.
- D. NEW CONSTRUCTION AND CONCRETE CONTROL JOINTS
- FRESHLY PLACED UNCURED CONCRETE: AFTER CONCRETE GRINDING AND POLISHING, CLEAN CONCRETE SUBSTRATE OF DIRT, CHALK, MARKINGS AND SAW CUT DEBRIS WITH CLEANING AGENT OR PROCESS RECOMMENDED BY MANUFACTURER.
- E. SEALER, HARDENER AND DENSIFIER APPLICATION:
- PRIOR TO APPLICATION OF PRODUCT, SUBSTRATE TO BE CLEAN, DRY AND ABSORBENT. CONFIRM SURFACE ABSORBENCY WITH A LIGHT WATER SPRAY. IF SURFACE DOES NOT WET UNIFORMLY, USE APPROPRIATE SURFACE PREPARATION CLEANER OR MECHANICAL PROCESS TO REMOVE REMAINING SURFACE CONTAMINANTS PER MANUFACTURER'S RECOMMENDATIONS.
 - CALCULATE TARGET COVERAGE RATE. VARIATIONS IN CONCRETE QUALITY, POROSITY, JOB CONDITIONS, TEMPERATURE AND RELATIVE HUMIDITY WILL AFFECT COVERAGE RATES AND DRYING TIMES. TEST A REPRESENTATIVE SECTION OF THE SUBSTRATE SURFACE TO CALCULATE THE TARGET COVERAGE RATE, BUT NOT LESS THAN 200 SQ. FT. PER GALLON.
 - APPLY MATERIAL AT SPECIFIED COVERAGE RATE BY MEANS RECOMMEND BY MANUFACTURER. APPLY SUFFICIENT PRODUCT TO WET THE SURFACE UNTIL REJECTION WITHOUT PRODUCING PUDDLES. USE A CLEAN, SOFT BRISTLE PUSH BROOM, MICROFIBER PAD OR OTHER MEANS RECOMMENDED BY MANUFACTURER TO SPREAD THE PRODUCT AND ENSURE UNIFORM WETTING, SATURATION AND PENETRATION OF SURFACES.
 - IF SURFACES DRY IMMEDIATELY OR BECOME STICKY, INCREASE RATE OF APPLICATION AND REAPPLY PRODUCT. AVOID EXCESS MATERIAL PUDDLING.
 - REMOVE PRODUCT DRIES AND CURES, IMMEDIATELY CLEAN SURFACES NOT INTENDED TO RECEIVE APPLICATION OF MATERIAL.
 - ALLOW TREATED SURFACES TO DRY OR CURE FOR DURATION RECOMMENDED BY MANUFACTURER FOR PROJECT CONDITIONS.
 - REMOVE ANY DRIED POWDER RESIDUE USING STIFF BROOM, POWER SWEEPER, AUTOMATIC SCRUBBING MACHINE, AND/OR CLEANING AGENT RECOMMENDED BY MANUFACTURER. AVOID PADS OR BRUSHES WHICH MAY DAMAGE THE FLOOR FINISH.

4.1 CONCRETE FLOOR SLAB - POLISHED CONCRETE FINISHING (CONT.):

- F. SEALER AND STAIN INHIBITOR APPLICATION:
- PRIOR TO APPLICATION OF PRODUCT, SURFACES TO BE CLEAN, DRY AND ABSORBENT. USE APPROPRIATE SURFACE PREPARATION CLEANER OR MECHANICAL PROCESS TO REMOVE CONTAMINANTS PER MANUFACTURER'S RECOMMENDATIONS.
 - CALCULATE TARGET COVERAGE RATE. VARIATIONS IN CONCRETE QUALITY, POROSITY, JOB CONDITIONS, TEMPERATURE AND RELATIVE HUMIDITY WILL AFFECT COVERAGE RATES AND DRYING TIMES. TEST A REPRESENTATIVE SECTION OF THE SUBSTRATE SURFACE TO CALCULATE THE TARGET COVERAGE RATE PER MANUFACTURER'S RECOMMENDATIONS, BUT NOT LESS THAN 500 SQ. FT. PER GALLON.
 - APPLY MATERIAL AT THE SPECIFIED COVERAGE RATE BY MEANS RECOMMENDED BY MANUFACTURER TO PRODUCE AN EVEN COAT. RESTRICT SPREADING AREA OF PRODUCT TO MAINTAIN WET EDGE AND AVOID DRYING AND VISIBLE OVERLAPPING.
 - ALLOW TREATED SURFACES TO DRY OR CURE FOR DURATION RECOMMENDED BY MANUFACTURER FOR PROJECT CONDITIONS.
 - PER MANUFACTURER'S RECOMMENDATIONS WHERE REQUIRED, ONCE DRY, BURNISH SURFACE USING A HIGH-SPEED BURNISHER, OR POLISHING PAD FOR USE ON GLOSS FINISHES, TO HEAT AND FUSE THE MATERIAL BOND TO INCREASE DURABILITY AND LONGEVITY. SURFACE TEMPERATURES IMMEDIATELY BEHIND THE BURNISHER MUST ACHIEVE 90.5 DEGREES FAHRENHEIT.
 - REPEAT SEALER AND STAIN INHIBITOR MATERIAL APPLICATION AND BURNISHING PROCESS BETWEEN COATS AS NECESSARY FOR SPECIFIED GLOSS FINISH. APPLY UP TO THREE COATS MAXIMUM.
 - DO NOT ALLOW FLOOR TO BE SUBJECT TO ANY FORMS OF MOISTURE, INCLUDING MOPPING AND WET FOOT TRAFFIC FOR 12 HOURS MINIMUM.
- G. TESTING:
- TEST WITH A PROPERLY CALIBRATED ABRIDGED GONIOPHOTOMETRY DEVICE IN ACCORDANCE WITH ASTM E 430.
 - RECORD RESULTS ON FLOOR PLAN DIAGRAM. READINGS SHALL BE TAKEN NOT LESS THAN 10' ON CENTER IN FIELD AREAS AND WITHIN 1' OF FLOOR AREA PERIMETERS.
 - RESULTS SHALL COMPLY WITH SPECIFIED SYSTEM PERFORMANCE AND APPEARANCE CRITERIA.
 - REWORK AREAS NOT IN COMPLIANCE UNTIL ACCEPTABLE RESULTS ARE ACHIEVED OR OTHERWISE APPROVED BY OWNER.
- H. JOINT SEALANT INSTALLATION:
- CLEAN CONCRETE JOINTS AND SUBSTRATE BY MEANS NECESSARY TO ALLOW PROPER BONDING AND SUFFICIENT SEALANT MATERIAL DEPOSIT.
 - INSTALL SEALANT MATERIAL IN CONTROL AND EXPANSION JOINTS IN COMPLIANCE WITH SECTION 07 92 00.
 - INSTALL JOINT SEALANTS TO A DEPTH FLUSH WITH ADJACENT SURFACES.
 - REMOVE EXCESS MATERIAL AND CLEAN.

3.03 PROTECTION, REPAIR AND CLEANING

- A. PROVIDE DISPOSAL OF SLURRY, DUST AND DEBRIS IN COMPLIANCE WITH APPLICABLE CODES.
- B. REMOVE DEBRIS AND SLURRY FROM ADJOINING SURFACES AS NECESSARY.
- C. REPAIR DAMAGED SURFACES CAUSED BY CLEANING OPERATIONS OR CONSTRUCTION ACTIVITIES PER MANUFACTURER'S RECOMMENDATIONS.
- D. RESTRICT AREAS TO TRAFFIC, COVER AND PROVIDE PROTECTION AS SPECIFIED AND PER MANUFACTURER'S RECOMMENDATIONS TO PREVENT DAMAGE BY OTHER TRADES DURING PROJECT COMPLETION.
- E. PROTECT FROM ELEMENTS, SWEEP, CLEAN AND MAINTAIN UNTIL PROJECT COMPLETION AND OWNER'S ACCEPTANCE OF THE WORK.
- F. PROVIDE OWNER'S REPRESENTATIVE DOCUMENTATION FOR PROPER CLEANING AND MAINTENANCE.

5.0 WALL CONSTRUCTION - METAL FRAMING:

PART 1 - GENERAL

1.01 SUMMARY

- A. PROJECT: COLD-FORMED METAL FRAMING.
- EXTERIOR AND INTERIOR LOAD-BEARING STEEL STUD FRAMING.
 - EXTERIOR AND INTERIOR NONLOAD-BEARING STEEL STUD FRAMING.
- B. SUBMITTALS
- AS NOTED UNLESS SUBMITTING FOR APPROVED EQUALS.
- 1.03 QUALITY ASSURANCE

- A. COMPLY WITH GOVERNING CODES AND REGULATIONS. PROVIDE PRODUCTS OF ACCEPTABLE MANUFACTURERS, WHICH HAVE BEEN IN SATISFACTORY USE IN SIMILAR SERVICE FOR AT LEAST THREE YEARS. USE EXPERIENCED INSTALLERS. DELIVER, HANDLE, AND STORE MATERIALS IN ACCORDANCE WITH MANUFACTURER'S INSTRUCTIONS.
- B. STANDARDS: COMPLY WITH THE PROVISIONS OF THE FOLLOWING SPECIFICATIONS AND STANDARDS, EXCEPT OTHERWISE NOTED OR SPECIFIED, OR AS ACCEPTED OR DIRECTED BY THE ARCHITECT.
- AISI, SPECIFICATION FOR DESIGN OF COLD-FORMED STEEL STRUCTURAL MEMBERS.
 - AWS D13, STRUCTURAL WELDING CODE.
 - ASTM A1003-13A, STANDARD SPECIFICATION FOR SHEET SHEET, CARBON, METALLIC, AND NONMETALLIC-COATED FOR COLD-FORMED FRAMING MEMBERS.
 - ASTM C645-11A, SPECIFICATIONS FOR NON-LOAD (AXIAL) BEARING STEEL STUDS, RUNNERS (TRACKS), AND RIGID FURRING CHANNELS FOR SCREW APPLICATION OF GYPSUM BOARD.
 - ASTM C754-11, SPECIFICATIONS FOR INSTALLATION OF STEEL FRAMING MEMBERS TO RECEIVE SCREW-ATTACHED GYPSUM BOARD.
 - ASTM C1007-11A, STANDARD SPECIFICATION FOR INSTALLATION OF LOAD BEARING (TRANSVERSE AND AXIAL) STEEL STUDS AND RELATED ACCESSORIES.

1.04 LOADING AND DEFLECTION CRITERIA

- A. IN ADDITION TO THE LOADS INDICATED ON THE DRAWINGS, COMPONENTS TO WITHSTAND DESIGN CRITERIA AS FOLLOWS:
- INTERIOR PARTITION FRAMING: 5 PSF MINIMUM LATERAL LOAD.
 - EXTERIOR MASONRY VENEER FRAMING: U/600 TOTAL DEFLECTION.
 - ALL OTHER FRAMING LOCATIONS, UNLESS OTHERWISE INDICATED: L/240 TOTAL DEFLECTION.
- B. DESIGN SYSTEM TO PROVIDE MOVEMENT OF COMPONENTS WITHOUT DAMAGE.

1.05 TOLERANCES

- A. FABRICATION TOLERANCES: 1/8-INCH IN 10'.
- B. ERECTION TOLERANCES: 1/16-INCH.

PART 2 - PRODUCTS

2.01 MATERIALS

- A. MANUFACTURERS: MARINO, DIETRICH, DALE/INCO, SUPERIOR, USG, GOLD BOND, UNIMAST, OR APPROVED EQUAL.
- B. SHEET STEEL: ASTM A1003-13A, GRADE AS REQUIRED FOR STRUCTURAL PERFORMANCE OF PROJECT CONDITIONS, 600 GALVANIZED COATING, WHERE IN DIRECT CONTACT WITH FIRE TREATED WOOD PRODUCTS, PROVIDE 990 GALVANIZED COATING.
- C. COLD-FORMED METAL FRAMING MATERIALS: REFER TO DRAWINGS FOR SPECIFIC MEMBER REQUIREMENTS:
- EXTERIOR FRAMING: C-SHAPED LOAD-BEARING STEEL STUDS WITH 1.625-INCH FLANGE AND FLANGE RETURN LIP.
 - INTERIOR FRAMING (LOAD-BEARING): C-SHAPED STEEL STUDS WITH 1.625-INCH FLANGE AND FLANGE RETURN LIP.
 - INTERIOR FRAMING (NON-LOAD BEARING): C-SHAPED STEEL STUDS WITH 1.250 INCH FLANGE AND FLANGE RETURN LIP.
 - SHAFTWALL FRAMING: C-H, C-T, OR S-SHAPED NONLOAD BEARING STEEL STUDS.
 - RUNNER CHANNEL: U-SHAPED WITH 1.25-INCH MINIMUM FLANGE.
 - JOIST FRAMING: C-SHAPED LOAD-BEARING STEEL JOISTS WITH 1.625-INCH FLANGE AND FLANGE RETURN LIP.
 - FURRING CHANNEL: W-SHAPED STEEL FURRING CHANNELS.
 - FURRING CHANNEL: Z-SHAPED STEEL FURRING CHANNELS FOR RIGID BOARD INSULATION, 1 1/2" WIDE SCREW FLANGE, TOED IN LEG TO GRIP INSULATION POSITIVELY.
 - RESILIENT CHANNEL: SINGLE-LEG, 1/2" DEEP X 1 1/4" WIDE SCREW FLANGE.
 - DEFLECTION CHANNEL: SINGLE SLIP TRACK DESIGN WITH 2.0-INCH MINIMUM FLANGE LENGTH.
 - UNITS 14 GAGE (68 MILS.) (0.877-INCH MIN.) AND HEAVIER: YIELD POINT 50,000 PSI.
 - UNITS 16 GAGE (54 MILS.) (0.538-INCH MIN.) AND HEAVIER: YIELD POINT 50,000 PSI.
 - UNITS 18 GAGE (43 MILS.) (0.428-INCH MIN.): YIELD POINT 33,000 PSI.
 - UNITS 20 GAGE (33 MILS.) (0.329-INCH MIN.): YIELD POINT 33,000 PSI.
 - UNITS 24 GAGE (18 MILS.) (0.179-INCH MIN.): YIELD POINT 33,000 PSI.

5.0 WALL CONSTRUCTION - METAL FRAMING (CONT.):

- D. FRAMING ACCESSORIES: WITH EACH TYPE OF METAL FRAMING REQUIRED, PROVIDE MANUFACTURER'S STANDARD ACCESSORIES AS RECOMMENDED BY MANUFACTURER FOR APPLICATIONS INDICATED, AS NEEDED TO PROVIDE A COMPLETE METAL FRAMING SYSTEM, INCLUDING:
- SUPPLEMENTARY FRAMING.
 - LATERAL BRACING, BRIDGING, AND SOLID BLOCKING.
 - STRAP: 1-1/2" X 20 GAGE.
 - CHANNELS: 1-1/2" X 20 GAGE.
 - WEB STIFFENERS.
 - GUSSET PLATES.
 - DEFLECTION TRACK AND VERTICAL SIDE CLIPS.
 - STUD KICKERS AND GIRTS.
 - JOIST HANGERS AND END CLOSURES.
 - REINFORCEMENT PLATES.
 - ANCHORS, CLIPS, AND FASTENERS.

PART 3 - EXECUTION

3.01 GENERAL

- A. INSTALL MATERIALS AND SYSTEMS IN ACCORDANCE WITH MANUFACTURER'S INSTRUCTIONS AND APPROVED SUBMITTALS. INSTALL MATERIALS AND SYSTEMS IN PROPER POSITION WITH ADJACENT CONSTRUCTION. COORDINATE WITH WORK ON OTHER SECTIONS.
- B. COMPLY WITH REQUIREMENTS OF ASTM 1003 FOR INSTALLATION OF STEEL STUDS AND ACCESSORIES AND METAL LATHING FRAMING SOCIETY FOR LIGHTWEIGHT STEEL FRAMING SYSTEMS MANUAL.
- C. MAKE PROVISIONS FOR ERECTION STUD SHOES. PROVIDE TEMPORARY ALIGNMENT AND BRACING. FRAMING COMPONENTS MUST BE PREFABRICATED INTO PANELS PRIOR TO ERECTION. PERFORM LIFTING OF PREFABRICATED PANELS IN A MANNER TO PREVENT DAMAGE OR DISTORTION IN ANY MEMBERS IN THE ASSEMBLY. "SLIP TYPING" FRAMING COMPONENTS IS NOT PERMITTED.

3.02 INSTALLATION

- A. RUNNER TRACKS: INSTALL CONTINUOUS TRACKS SIZED TO MATCH STUDS. ALIGN TRACKS ACCURATELY TO THE LAYOUT AT BASE AND TOP OF STUDS. SECURE TRACKS AS RECOMMENDED BY THE STUD MANUFACTURER FOR THE TYPE OF CONSTRUCTION INVOLVED, EXCEPT DO NOT EXCEED 1/4 INCHES ON CENTER SPACING FOR NAAL OR POWER DRIVEN FASTENERS, NOR 16-INCHES ON CENTER FOR OTHER TYPES OF ATTACHMENT. PROVIDE FASTENERS AT CORNERS AND ENDS OF TRACKS.
- B. JOIST STUDS: INSTALL AT 24-INCHES ON CENTER, UNLESS OTHERWISE INDICATED.
- STUDS PLUMB, EXCEPT AS NEEDED FOR DIAGONAL BRACING OR REQUIRED FOR NON-PLUMB WALLS OR WARPED SURFACES AND SIMILAR REQUIREMENTS.
 - SECURE STUDS TO TOP AND BOTTOM RUNNER TRACKS BY EITHER WELDING OR SCREW FASTENING AT BOTH INSIDE AND OUTSIDE FLANGES. ERECT HORIZONTAL AND VERTICAL LOAD BEARING STUDS ONE PIECE FULL LENGTH. SPACING OF STUDS IS NOT PERMITTED. PUNCH-OUTS SHALL BE 10-INCHES MINIMUM FROM ENDS OF STUDS.
 - ALLOW FOR DEFLECTION, DIRECTLY BELOW HORIZONTAL BRACING FRAMING FOR NON-LOAD BEARING FRAMING AS INDICATED ON DRAWINGS.
 - INSTALL HORIZONTAL STIFFENERS IN STUD SYSTEM, SPACED VERTICALLY AT NOT MORE THAN 4 FEET ON CENTER. FASTEN AT EACH STUD INTERSECTION.
 - CONSTRUCT CORNER STUDS USING MINIMUM 3 STUDS. DOUBLE STUD WALL OPENINGS, DOOR AND WINDOW JAMBS WITH OPENING LARGER THAN 2 FEET SQUARE, EXCEPT WHERE INDICATED IN MANUFACTURER'S INSTRUCTIONS. INSTALL RUNNER TRACKS AND JAMB STUDS WITH STUD SHOES OR BY WELDING AND SPACE JACK STUDS SAME AS FULL HEIGHT STUDS OF THE WALL. SECURE STUD SYSTEM ALL AROUND TO WALL OPENING FRAME IN THE MANNER INDICATED.
 - INSTALL SUPPLEMENTARY FRAMING, BLOCKING, AND BRACING IN THE METAL FRAMING SYSTEM WHEREVER WALLS OR PARTITIONS ARE INDICATED TO SUPPORT FIXTURES, EQUIPMENT, SERVICES, CASEWORK, HEAVY TRIM AND FURNISHING, AND SIMILAR WORK REQUIRING ATTACHMENT TO THE WALL OR PARTITION. WHERE TYPE OF SUPPLEMENTARY SUPPORT IS NOT OTHERWISE INDICATED, COMPLY WITH THE STUD MANUFACTURER'S RECOMMENDATIONS AND INDUSTRY STANDARDS IN EACH CASE, CONSIDERING THE WEIGHT OF LOADING RESULTING FROM THE ITEMS SUPPORTED.
 - WHERE STUD SYSTEM ABUTS STRUCTURAL COLUMNS OR WALLS, ANCHOR ENDS OF STIFFENERS TO SUPPORTING STRUCTURE.
 - INSTALL DIAGONAL RACKING BRACING AT EACH CORNER WHERE WALLS ARE FREE STANDING AND NOT ATTACHED TO STRUCTURE.
 - FRAME BOTH SIDES OF EXPANSION AND CONTROL JOINTS, WITH SEPARATE STUDS. DO NOT BRIDGE THE JOINT WITH COMPONENTS OF THE STUD SYSTEM.
- C. JOIST: INSTALL AT 24-INCHES ON CENTER, UNLESS OTHERWISE INDICATED.
- PLACE JOIST AS SHOWN ON DRAWINGS; NOT MORE THAN 2-INCHES FROM ABUTTING WALLS. CONNECT JOIST TO SUPPORTS USING FASTENERS OR WELDING.
 - SET JOIST PARALLEL AND LEVEL WITH LATERAL BRACING AND BRIDGING.
 - LOCATE JOIST END BEARING DIRECTLY OVER LOAD BEARING STUDS OR PROVIDE LOAD DISTRIBUTING MEMBER TO TOE END OF STUDS. PUNCH-OUTS SHALL BE 10-INCHES MINIMUM FROM ENDS OF JOIST.
 - PROVIDE WEB STIFFENERS AT REACTION POINT AND/OR AS SHOWN ON DRAWINGS.
 - PROVIDE DOUBLE JOIST AT FLOOR OPENINGS EXCEEDING 2 FEET AND AT INTERRUPTION OF ONE OR MORE SPANNING MEMBERS.
 - END BLOCKING SHALL BE PROVIDED WHERE JOIST ENDS ARE NOT OTHERWISE RESTRAINED FROM ROTATION.
- D. RESTORE DAMAGED COMPONENTS. PROTECT WORK FROM DAMAGE.

5.1 WALL CONSTRUCTION - METAL FABRICATIONS:

PART 1 - GENERAL

1.01 SUMMARY

- A. PROVIDE THE FOLLOWING WHERE INDICATED ON DRAWINGS:
- ROUGH HARDWARE.
 - PIPE BOLLARDS.
 - LOOSE BEARING, LEVELING PLATES AND TEMPLATES.
 - ANCHOR BOLTS, EXPANSION BOLTS, AND OTHER ELLANEOUS FASTENERS.
 - STEEL SUPPORTS FOR WORK OF OTHER TRADES.
 - LOOSE STEEL LINTELS.
 - PIPE AND TUBE HANDRAILS AND GUARDRAIL SYSTEMS.
 - ROOF ACCESS LADDER.
 - SIDEWALK DRAIN COVER PLATES, EDGE ANGLES, AND STUDS.

1.02 SUBMITTALS

- A. COMPLY WITH SECTION 01 33 00.
- B. UPON REQUEST SUBMIT SHOP DRAWINGS OF PIPE AND TUBE HANDRAILS AND GUARDRAIL FOR APPROVAL.

1.03 QUALITY ASSURANCE

- A. COMPLY WITH GOVERNING CODES AND REGULATIONS. PROVIDE PRODUCTS OF ACCEPTABLE MANUFACTURERS, WHICH HAVE BEEN IN SATISFACTORY USE IN SIMILAR SERVICE FOR THREE YEARS. USE EXPERIENCED INSTALLERS. DELIVER, HANDLE, AND STORE MATERIALS IN ACCORDANCE WITH MANUFACTURER'S INSTRUCTIONS.
- B. STANDARDS: COMPLY WITH THE PROVISIONS OF THE FOLLOWING SPECIFICATIONS AND STANDARDS, EXCEPT AS OTHERWISE NOTED OR SPECIFIED, OR AS ACCEPTED OR DIRECTED BY THE ARCHITECT.
- AISC A 36-90, "SPECIFICATIONS OF STRUCTURAL STEEL".
 - ASTM A 53-90A, "SPECIFICATION OF PIPE, STEEL, BLACK AND HOT-DIPPED, ZINC-COATED WELDED AND SEAMLESS".
 - ASTM A 500-90, "SPECIFICATION FOR COLD-FORMED WELDED AND SEAMLESS CARBON STEEL STRUCTURAL TUBING IN ROUNDS AND SHAPES".
 - ASTM A 501-89, "SPECIFICATION FOR HOT-FORMED WELDED AND SEAMLESS CARBON STEEL STRUCTURAL TUBING".

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ARCHITECTURAL GENERAL SPECIFICATIONS

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