Submittal Review Response

Project Name:	***Hilo WWTP Rehabilitation and Replacement Project Phase 1***
Submittal No.:	***03200-001.0***
Date:	***8/19/2025***

Client:	County of Hawai‘i	**Carollo Project No.:**	203975
Contractor:	Nan, Inc.		
Submittal Name:	CMC Rebar - Concrete Reinforcing Accessories		
Reviewed By:	Marissa Kurniawan, Mathew Esquer		

SUBMITTAL REVIEW		
Review is for general compliance with contract documents. No responsibility is assumed by Carollo for correctness of quantities, dimensions, and details. No deviation or variation is approved unless specifically addressed in these review comments. Refer to Section 01330 for additional requirements. The Contractor shall assume full responsibility for coordination with all other trades and deviations from contract requirements.		
Approved	☐	No Exceptions
	☒	Make Corrections Noted - See Comments
	☐	Make Corrections Noted - Confirm
Not Approved	☐	Correct and Resubmit
	☐	Rejected - See Remarks
Receipt Acknowledged	☐	Filed for Record
	☐	With Comments - Resubmit

Review Comments:

Item 1 – Precast Concrete Bar Supports - Materials

1. Submittal PDF Page 15 shows that the compressive strength of the precast concrete bar supports (“dobies”) is 7400 psi, which exceeds the compressive strength of surrounding concrete. This is acceptable as per Specification 03200.2.02.B.4b. This is only applicable to this submittal item.

Item 1 – Precast Concrete Bar Supports - Materials

2. Submittal PDF Page 16-17 shows of the Dayton Superior D340 Taper-Lock Flange Coupler.
3. This submittal is only for the approval of the use of a formsaver product.

☑ High Priority

CONTRACTOR SUBMITTAL TRANSMITTAL FORM REV. A

Owner:	County of Hawaii		
Contractor:	Nan, Inc.	**Project No.:**	WW-4705R
Project Name:	Hilo WWTP Phase 1	**Submittal Number:**	03200 - 001.0
Submittal Title:	CONCRETE REINFORCING ACCESSORIES	☐ For Information Only	
TO:	County		
From:	Nan Inc.		

Specification No. and Subject of Submittal / Equipment Supplier			
Spec:	03200	**Paragraph:** 1.04, 2.02,	
Authored By:	CMC Rebar	**Date Submitted:**	07/22/2025

Submittal Certification

Check Either (A) or (B):

☑ (A) We have verified that the equipment or material contained in this submittal meets all the requirements specified in the project manual or shown on the contract drawings with no exceptions.

☐ (B) We have verified that the equipment or material contained in this submittal meets all the requirements specified in the project manual or shown on the contract drawings except for the deviations listed.

Certification Statement: By this submittal, I hereby represent that I have determined and verified all field measurements, field construction criteria, materials, dimensions, catalog numbers and similar data, and I have checked and coordinated each item with other applicable approved shop drawings and all Contract requirements.

General Contractor's Reviewer's Signature:

Printed Name and Title: Jyun-Cheng Jhuo, Project Engineer

In the event, Contractor believes the Submittal response does or will cause a change to the requirements of the Contract, Contractor shall immediately give written notice stating that Contractor considers the response to be a Change Order.

Firm: **Signature:** **Date Returned:**

PM/CM Office Use

Date Received GC to PM/CM:

Date Received PM/CM to Reviewer:

Date Received Reviewer to PM/CM:

Date Sent PM/CM to GC:

Nan, Inc

PROJECT: HILO WWTP REHABILITATION AND REPLACEMENT PROJECT - PHASE 1

JOB NO. WW-4705R

THIS SUBMITTAL HAS BEEN CHECKED BY THIS CONTRACTOR. IT IS CERTIFIED CORRECT, COMPLETE, AND IN COMPLIANCE WITH CONTRACT DRAWINGS AND SPECIFICATIONS. ALL AFFECTED CONTRACTORS AND SUPPLIERS ARE AWARE OF, AND WILL INTEGRATE THIS SUBMITTAL (UPON APPROVAL) INTO THEIR OWN WORK.

DATE RECEIVED 7/29/2025
SPECIFICATION SECTION # 03200
SPECIFICATION CONCRETE REINFORCING
PARAGRAPH 2.02
DRAWING N/A
SUBCONTRACTOR N/A
SUPPLIER CMC
MANUFACTURER N/A

CERTIFIED BY CQCM or Designee :_____

SECTION 03200

CONCRETE REINFORCING

PART 1 GENERAL

1.01 SUMMARY

A. Section includes:
   1. Reinforcing bars:
      a. Carbon steel.
   2. Thread bars.
   3. Bar supports.
   4. Tie wires.
   5. Welded wire fabric.
   6. Mechanical reinforcing bar couplers.

1.02 REFERENCES

A. American Concrete Institute (ACI):
   1. 318 - Building Code Requirements for Structural Concrete and Commentary.
   2. SP-66 - ACI Detailing Manual.

B. American Iron and Steel Institute (AISI).

C. American Welding Society (AWS):
   1. D1.4 - Structural Welding Code - Reinforcing Steel.

D. ASTM International (ASTM):
   1. A493 - Standard Specification for Stainless Steel Wire and Wire Rods for Cold Heading and Cold Forging.
   2. A615 - Standard Specification for Deformed and Plain Carbon Steel Bars for Concrete Reinforcement.
   3. A706 - Standard Specification for Low-Alloy Steel Deformed and Plain Bars for Concrete Reinforcement.
   4. A1064 - Standard Specification of Carbon-Steel wire and Welded Wire Reinforcement, Plain and Deformed, for Concrete.

E. Concrete Reinforcing Steel Institute (CRSI):
   1. Manual of Standard Practice.

F. ICC Evaluation Service (ICC-ES):
   1. AC133 - Acceptance Criteria for Mechanical Connector Systems for Steel Reinforcing Bars.

1.03 DEFINITIONS

A. Architectural Concrete: Concrete surfaces that will be exposed to view in the finished work.
   1. Additionally, for purposes of this Section, includes:
      a. Concrete surfaces that are designated to receive paints or coatings.
      b. Exposed concrete in open basins, channels, and similar liquid containing structures:Surfaces shall be considered exposed to view if located above a line 2 feet below the normal operating water surface elevation in that structure.

B. Bars: Reinforcement or reinforcing bars as specified in this Section.

C. Evaluation Report: Report prepared by ICC-ES , or by other testing agency acceptable to the Engineer and to the Building Official, that documents testing and review of a product to confirm that it complies with the requirements of designated ICC-ES Acceptance Criteria, and its acceptance for use under the Building Code specified in Section 01410 - Regulatory Requirements.

D. Give Away Bars: Reinforcing bars that are not required by the Contract Documents, but are installed by the Contractor to provide support for the required reinforcing bars.

E. Wire Supports: Metal reinforcing supports constructed of steel wire as specified. Includes individual high chairs, continuous high chairs, bolsters and other similar configurations and shapes.

1.04 SUBMITTALS

A. General:
   1. Submit in accordance with Section 01330 - Submittal Procedures.
   2. Changes to reinforcement in Contract Documents:
      a. Indicate in a separate letter submitted with shop drawings any changes to reinforcement indicated on the Drawings or specified.
      b. Such changes will not be acceptable unless Engineer has accepted them in writing.

B. Product data:
   1. Bar supports:
      a. Wire bar supports:
         1) Schedule of support materials to be provided and locations of use.
      b. Precast concrete bar supports ("dobies"):
         1) Manufacturer's data indicating compression strength of concrete and confirming dimensions and thickness(es).height(s) to be provided for each location where used.
   2. Mechanical reinforcing bar couplers. For each type and/or series to be provided:
      a. Evaluation Report documenting compliance with the requirements of ICC-ES AC133.

Will show in shop drawings

Will show in shop drawings

The subcontractor will follow the testing procedure specified in ACI CODE for mechanical coupler

b. Details, properties, and dimensions of couplers. Include type or size identification, and bar size(s) and grade(s) for which the coupler is suitable.
c. Manufacturer's installation and testing instructions.
d. Manufacturer's statement that products installed in accordance with manufacturer's recommended procedures will develop strengths and limit slip as specified in this Section.

C. Shop drawings:

Not included in this submittals

1. Reinforcement shop drawings:
   a. Submit drawings showing bending and placement of reinforcement required by the Contract Documents.
   b. Clearly indicate structures or portions of structures covered by each submittal.
      1) Submit reinforcement shop drawings for each structure as a complete package. Submittals addressing only a portion of a structure will be rejected and returned without review, unless such presentation is accepted by Engineer in advance.
   c. Shop drawings shall conform to the recommendations of the CRSI Manual of Standard Practice and ACI SP-66.
   d. Use the same bar identification marks on bending detail drawings, placement drawings, and shipping tags.
   e. Submittals consisting solely of reinforcing bar schedules, without accompanying placement drawings, will not be accepted unless accepted under prior written agreement with Engineer.
2. Reinforcement placement drawings:
   a. Clearly show placement of each bar listed in the bill of materials, including additional reinforcement at corners and openings, and other reinforcement required by details in the Contract Documents.
   b. Clearly identify locations of reinforcement with coatings (e.g., galvanized or epoxy) and with yield strength other than ASTM A615, Grade 60.
   c. Show anchor bolt locations based on anchor bolt templates for approved equipment.
   d. Show splice locations.
   e. Show locations of mechanical reinforcing couplers, if used.
3. Reinforcement fabrication drawings:
   a. If bend types or nomenclature differs from that recommended in the CRSI Manual of Standard Practice, provide details showing bend types and dimensional designations.
      Clearly identify reinforcement with coatings and with yield strength other than ASTM A615, Grade 60.

D. Samples (when requested by Engineer):

Not included in this submittals

1. Bar supports/wire reinforcement supports: Samples of each type of chair and bolster proposed for use. Submit with letter stating where each type will be used.
2. Precast concrete bar supports: Samples of each type of precast support proposed for use. Submit with letter stating where each will be used.

E. Test reports:
1. Certified copy of mill test for each steel used. Show physical properties and chemical analysis.
   a. Mill test reports may be submitted as record documents at the time the reinforcement from that heat of steel is shipped to the site.
   b. In such cases, submit certificates under the shop drawing submittal number with the letter "R" (for record date) appended to the end (e.g., of the reinforcement was submitted as 03200-002-1, deliver the associated mill certificate as submittal 03200-002-1R).
2. Mechanical reinforcing bar couplers:
   a. Current Evaluation Report confirming that couplers provide specified tension and compression strength and conform to specified limits on total slip within the coupler.
   b. Certified copy of mill tests for heat(s) of steel incorporated into the reinforcing bar couplers shipped.
   c. For threaded sleeve type couplers, heat treatment lot numbers for each shipment.

Not included in this submittals. Will be provided for each shipping

F. Manufacturer's instructions:
1. Mechanical reinforcing bar couplers:
   a. Manufacturer's installation instructions.
   b. Manufacturer's instructions for confirmation testing of couplers after reinforcing bars have been inserted into the couplers.

The subcontractor will follow the testing procedure specified in ACI CODE for mechanical coupler

G. Special procedures:
1. Welding procedures conforming to AWS D1.4 for reinforcement to be field welded.
   a. Procedures qualification record.

H. Qualifications statements:
1. Welder qualifications.

Not included in this submittals. Subcontractor hsa no plan to use welding so far, will provide if needed

I. Closeout documents:
1. Field quality control and inspection reports.
2. Field quality assurance special inspection and testing reports.

Not included in this submittals

1.05 DELIVERY, STORAGE, AND HANDLING

A. Packing and shipping:
1. Deliver bars bundled and tagged with identifying tags.

B. Acceptance at site:
1. Reinforcing bars: Deliver reinforcing bars lacking grade identification marks with letter containing manufacturer's guarantee of grade.

1.06 SEQUENCING AND SCHEDULING

A. Bar supports:
1. Do not place concrete until samples and product data for bar supports have been accepted by Engineer.

PART 2 PRODUCTS

2.01 DESIGN AND PERFORMANCE CRITERIA

A. The drawings contain notes describing the size and spacing of reinforcement and its placement, details of reinforcement at wall corners and intersections, and details of extra reinforcement around openings in concrete, and other related information.

2.02 MATERIALS

A. Reinforcing bars:
   1. Provide reinforcement of the grades and quality specified, fabricated from new stock, free from excessive rust or scale, and free from unintended bends or other defects affecting its usefulness.
   2. Reinforcing bars:
      a. ASTM A615 Grade 60 deformed bars, including the following requirements, or ASTM A706 Grade 60 deformed bars.
         1) Actual yield strength based on mil tests of reinforcement provided shall not exceed the minimum yield strength specified in this Section by more than 18,000 pounds per square inch.
         2) Ratio of actual ultimate tensile strength to actual tensile yield strength shall not be less than 1.25.
   3. Reinforcing bars designated or required to be welded:
      a. Low-alloy, ASTM A706 Grade 60, deformed bars.

B. Bar supports:
   1. Wire supports:
      a. All stainless steel bar supports:
         1) Conforming to CRSI Manual of Standard Practice recommendations for types and details, but custom fabricated entirely from stainless steel wire conforming to ASTM A493, AISI Type 316.
      b. Stainless steel protected bar supports:
         1) Conforming to CRSI Manual of Standard Practice Class 2, Type B, and consisting of bright basic wire support fabricated from cold--drawn carbon steel wire with stainless steel ends attached at the bottom of each leg.
         2) Stainless steel wire ends shall conform to ASTM A493, AISI Type 316 and shall extend at least 3/4 inch inward from the formed surface of the concrete.
      c. Bright basic wire bar supports.
         1) Conforming to CRSI Manual if Standard Practice, Class 3.
   2. Plastic supports:
      a. Manufacturers: The following or equal:
         1) Aztec Concrete Accessories.
   3. Deformed steel reinforcing bar supports:
      a. Fabricated of materials and to CRSI details recommended for typical reinforcement embedded in concrete and bent to dimensions required to provide specified clearances and concrete cover.
   4. Precast concrete bar supports ("dobies"):
      a. Pre-manufactured, precast concrete blocks with cast-in annealed steel wires, 16-gauge or heavier.

b. Compression strength of concrete: Equal to or exceeding the compression strength of the surrounding concrete.
c. Block dimensions:
1) Height to provide specified concrete cover.
2) Footprint not less than 3 inches by 3 inches, and adequate to support the weight of the reinforcement and maintain specified concrete cover without settling into the underlying surface.

5. Stainless steel wire supports on stainless steel plates:
a. Type 304 stainless steel wire bar support chairs or bolsters supported on Type 304 stainless steel plates resting on the ground surface.
1) Weld plates to at least 2 legs of wire support chairs.

C. Tie wires:
1. General use: Black annealed steel wire, 16-gauge or heavier.

D. Welded wire fabric reinforcement:
1. Material:
a. Carbon steel conforming to ASTM A1064.
2. Provide welded wire reinforcement in flat sheet form. Rolled wire fabric is not permitted.
3. Fabric may be used in place of reinforcing bars if accepted by Engineer:
a. Provide welded wire fabric having cross-sectional area per linear foot not less than the cross-sectional area per linear foot of reinforcing bars indicated on the Drawings.

E. Mechanical reinforcing bar couplers:
1. General:
a. Only products conforming to the requirements of ACI 318 for mechanical splices, and holding a current Evaluation Report that documents the following performance characteristics, will be considered for use.
b. Strength of coupler: Capable of developing tension and compression strength not lower than the lesser of the following:
1) ACI 318 "Type 2" units: In static tension and compression:
a) Minimum 125 percent of the ASTM-specified minimum yield strength of the reinforcement being spliced.
b) Minimum 100 percent of the ASTM-specified minimum ultimate strength of the reinforcement being spliced.
c. Slip of reinforcing bars within coupler: Total slip of the reinforcing bars within the splice sleeve limited as follows:
1) For bar sizes #14 and smaller, elongation between gauge points measured clear of the splice sleeve not exceeding 0.010 inches after coupler has been loaded to a tension of 30,000 pounds per square inch and load relaxed to a tension of 3,000 pounds per square inch.
d. Fabrication:
1) Threaded joints:
a) Provide threaded ends designed so that cross-threading of bars will not occur during assembly.
b) Fabricate male ends for female couplers using coupler manufacturer’s bar threading equipment to ensure proper taper and thread engagement.
2) Mark each sleeve with heat treatment lot number.

2. Couplers: Threaded - Reinforcing bar splice at construction joints.
    a. Steel sleeve butt splice with tapered internal threads in forged or swaged head, and nailing flange for attaching to forms. Provide with matching, tapered male-threaded dowels for insertion and tightening into threaded sleeve after form removal.
        1) Provide sleeve with factory-installed plugs to prevent concrete mortar from entering internally threaded coupler.
        2) Provide optional clipped nailing flanges as required to maintain minimum specified concrete cover over surfaces of coupler.
    b. Holding current Evaluation Report demonstrating acceptance under ICC-ES AC133.
    c. Manufacturers: One of the following or equal:
        1) Dayton Superior, DBDI Splice System.
        2) ERICO-Pentair, Lenton Form Saver.
3. Couplers: Threaded - reinforcing bar splice:
    a. Steel sleeve butt splice with tapered internal threads at each end for joining to matching tapered male threads on reinforcing bars.
    b. Holding current Evaluation Report demonstrating acceptance under ICC-ES AC133.
    c. Manufacturers: One of the following, or equal:
        1) Dayton Superior: Taper-Lock System.
        2) ERICO-Pentair: Lenton Taper Threaded Splicing System.

2.03 FABRICATION

A. Shop fabrication and assembly:
    1. Cut and bend bars in accordance with provisions of ACI 318 and the CRSI Manual of Standard Practice.
    2. Bend bars cold. Use bending collars to develop the recommended bend radius.
    3. Provide bars free from defects and kinks and from bends not indicated on the Drawings.
    4. Circumferential and radiused reinforcement: Roll to the radius required for its location in the structure before installation.
    5. Bars to be fitted with mechanical couplers:
        a. Fabricate threaded ends for connections in shop using manufacturer's recommended tools. Field fabrication is not allowed.
        b. Cut ends square.

PART 3 EXECUTION

3.01 EXAMINATION

A. Verification of conditions:
    1. Reinforcing bars and welded wire reinforcement:
        a. Verify that reinforcement is new stock, free from rust scale, loose mill scale, excessive rust, dirt, oil, and other coatings that will adversely affect bonding capacity when placed in the Work.
    2. Welded wire fabric:
        a. Verify that sheets are not curled or kinked before or after installation.

3.02 PREPARATION

A. Surface preparation:
   1. Reinforcing bars - uncoated:
      a. Clean reinforcement of concrete, dirt, oil and other coatings that will adversely affect bond before embedding bars in subsequent concrete placements.
      b. Thin coating of red rust resulting from short exposure will not be considered objectionable. Thoroughly clean bars having rust scale, loose mill scale, or thick rust coat.
      c. Partially embedded reinforcement: Remove concrete or other deleterious coatings from dowels and other projecting bars by wire brushing or sandblasting before bars are embedded in subsequent concrete placements.

3.03 INSTALLATION

A. Reinforcing bars: General:
   1. Field-cutting of reinforcing bars is not permitted.
   2. Field-bending of reinforcing bars, including straightening and rebending, is not permitted.

B. Placing reinforcing bars:
   1. Accurately place bars to meet position and cover requirements indicated on the Drawings and specified. Secure bars in position.
   2. Tolerances for placement and minimum concrete cover: As listed in Table 1.

Table 1 - Reinforcement Placing Tolerances

Member	Tolerance on Reinforcement Location (1)	Tolerance on Minimum Concrete Cover (1,2)
Slabs, beams, walls and columns except as noted below:		
10 inches thick and less	± 3/8 inch	- 3/8 inch
More than 10 inches thick	± 1/2 inch	- 1/2 inch
Formed soffits:	As noted above	- 1/4 inch
Longitudinal location of bends and ends of reinforcement:		
Conditions not listed below:	± 2 inches	- 1/2 inch
At discontinuous ends of brackets and corbels	± 1/2 inch	- 1/4 inch
At discontinuous ends of other members:	± 1 inch	- 1/2 inch

Notes:
(1) ± indicates "plus or minus;" - indicates "minus;" + indicates "plus."
(2) Tolerance on cover is limited as noted, but decrease in cover shall not exceed one third of the minimum cover indicated on the Drawings.

3. Spacing between bars:
    a. Minimum clear spacing between bars in a layer:
        1) As indicated on the Drawings, but not less than the larger of 1.5 times the bar diameter or 1-1/2 inches.
    b. Minimum clear spacing between bars in 2 or more parallel layers:
        1) Place bars in upper layers directly above bars in lower layers.
        2) Minimum spacing between layers: As indicated on the Drawings, but not less than the larger of 1.5 times the bar diameter or 1-1/2 inches.
    c. Limits on minimum clear spacing between bars also applies to the clear spacing between a lap splice and the adjacent bars and/or lap splices.
4. Lap splices for bars:
    a. Lap splice locations and lap splice lengths: as indicated on the Drawings. Where lap lengths are not indicated, provide in accordance with ACI 318.
    b. Unless otherwise specifically indicated on the Drawings (and noted as "non-contact lap splice"), install bars at lap splices in contact with each other and fasten together with tie wire.
    c. Where bars are to be lap spliced at concrete joints, ensure that bars project from the first concrete placement a length equal to or greater than minimum lap splice length indicated on the Drawings.
    d. Stagger lap splices where indicated on the Drawings.
    e. Where lap splice lengths are not indicated on the Drawings, provide lap splice lengths in accordance with ACI 318.

C. Reinforcing supports:
1. Provide supports of sufficient numbers, sizes, and locations to maintain concrete cover, to prevent sagging and shifting, and to support loads during construction without displacement and without gouging or indentation into forming surfaces.
    a. Quantities and locations of supports shall not be less than those indicated in ACI SP-66 and the CRSI Manual of Standard Practice.
2. Do not use brick, concrete masonry units, concrete spalls, rocks, wood, or similar materials for supporting reinforcement.
3. Do not use "give away bars" that have less cover than that required by the Contract Documents. Do not adjust the location of reinforcement required by the Contract Documents to provide cover for give away bars.
4. Provide bar supports of height required to maintain the clear concrete cover indicated on the Drawings.
5. Provide bar supports at formed vertical faces to maintain the clear concrete cover indicated on the Drawings.

6. Schedule of reinforcement support materials: Provide bar supports as indicated in Table 2.

Table 2 - Reinforcement Support Materials		
Case	**Location**	**Material**
a.	Concrete placed over earth and concrete seal slabs ("mud mats"):	Precast concrete bar supports.
b.	Concrete placed against forms and exposed to water or wastewater process liquids (whether or not such concrete received additional linings or coatings):	All stainless steel bar supports.
c.	Concrete placed against forms and exposed to earth, weather, frequent washdown, or groundwater in the finished work:	All stainless steel bar supports.
d.	Concrete placed against forms and exposed to interior equipment/piping areas in the finished work:	All stainless steel bar supports.
e.	Between mats of reinforcement, and fully embedded within a concrete member:	Bright basic wire bars supports, or deformed steel reinforcing bars.

D. Tying of reinforcing:
   1. Fasten reinforcement securely in place with wire ties.
   2. Tie reinforcement at spacings sufficient to prevent shifting.
      a. Provide at least 3 ties in each bar length. (Does not apply to dowel lap splices or to bars shorter than 4 feet, unless necessary for rigidity).
   3. Tie slab bars at every intersection around perimeter of slab.
   4. Tie wall bars and slab bar intersections other than around perimeter at not less than every fourth intersection, but at not more than the spacing indicated in Table 3:

Table 3 - Maximum Spacing of Tie Wires for Reinforcement		
Bar Size	**Slab Bar Spacing (inches)**	**Wall Bar Spacing (inches)**
Bars Number 5 and Smaller	60	48
Bars Number 6 through Number 9	96	60
Bars Number 10 and Number 11	120	96

   5. After tying:
      a. Bend ends of wires inward towards the center of the concrete section. Minimum concrete cover for tie wires shall be the same as cover requirements for reinforcement.
      b. Remove tie wire clippings from inside forms before placing concrete.

E. Welded wire fabric reinforcement:
   1. Install only where indicated on the Drawings or accepted in advance by Engineer.
   2. Install necessary tie wires, spacing chairs, and supports to keep welded wire fabric at its designated position in the concrete section while concrete is being placed.
   3. Straighten welded wire fabric to make sheets flat in the Work.
   4. Do not allow wire fabric to drape between supports unless such a configuration is specifically indicated on the Drawings.
      a. If fabric is displaced during placement of concrete, make provisions to restore it to the designated location using methods acceptable to Engineer.
   5. Bend welded wire fabric as indicated on the Drawings or required to fit Work.
   6. Lap splice welded wire fabric as indicated on the Drawings.
      a. If lap splice length is not indicated, splice in accordance with ACI 318, but not less than 1 1/2 courses of fabric or 8 inches minimum. Tie laps at ends and at not more than 12 inches on center.

F. Welding reinforcing bars:
   1. Weld reinforcing bars only where indicated on the Drawings or where acceptance is received from Engineer prior to welding.
   2. Perform welding in accordance with AWS D1.4 and welding procedures accepted by Engineer.
      a. Conform to requirements for minimum preheat and interpass temperatures.
   3. Submit:
      a. Welding procedures specification.
      b. Procedures qualification record.
      c. Welder qualification test record.
   4. Do not tack weld reinforcing bars except where specifically indicated on the Drawings.

G. Reinforcing bar mechanical couplers:
   1. Install only at locations indicated on the Drawings or where prior approval has been obtained from Engineer.
   2. Install in accordance with manufacturer's instructions and requirements of Evaluation Report.
      a. Make splices using manufacturer's standard equipment, jigs, clamps, and other required accessories.
      b. After assembly of the splice, tighten using torque load not less than that recommended by the manufacturer.
   3. Unless greater cover is indicated on the Drawings, provide clear cover from surface of concrete to outside face of couplers that is not less than the minimum concrete cover specified for typical reinforcement.
      a. If cover is less than required, contact Engineer for evaluation of conditions before modifying locations of bars or placing concrete.
      b. Modifications to maintain or provide required concrete cover, such as addition of concrete ; re-positioning of stirrups, ties, etc., may be completed only after approval by Engineer.

3.04 FIELD QUALITY CONTROL

A. Provide quality control for the Work of this Section as specified in Section 01450 -Quality Control.

B. Field inspections and testing:
   1. Submit records of inspections and testing to Engineer in electronic format within 24 hours after completion.

C. Manufacturer's services:
   1. Furnish manufacturer's technical representative to conduct jobsite training regarding proper storage, handling, and installation of mechanical reinforcing bar couplers for personnel who will perform the installation. Engineer may attend training session.

3.05 FIELD QUALITY ASSURANCE

A. Provide quality assurance as specified in Section 01450 - Quality Control.

B. Special inspections and tests:
   1. Provide as specified in Section 01455 - Regulatory Quality Assurance.
   2. Frequency of inspections:
      a. Unless otherwise indicated on the Drawings or in this Section, provide periodic special inspection as required by the Building Code specified in Section 01410 - Regulatory Requirements.
   3. Preparation:
      a. Review Drawings and Specification for the Work to be observed.
      b. Review approved submittal sand shop drawings.
   4. Inspections: Special inspection shall include, but is not limited to, the following items.
      a. Reinforcement: General:
         1) Type (material) and location of reinforcement supports.
         2) Bar material/steel grade and bar size.
         3) Location, placement, and spacing of bars.
         4) Clear concrete cover over reinforcement.
         5) Lap splice: Location and lap length. Bars within tolerances for contact (unless non-contact splice is indicated on the Drawings).
         6) Bar hooks and development lengths embedded within concrete sections as indicated on the Drawings.
         7) Reinforcement tired in position and tie wire legs turned inward toward the center of the concrete section.
      b. Reinforcement: Welding:
         1) Inspector qualification and inspections shall be in accordance with the requirements of AWS D1.4.
         2) Provide periodic inspection for:
            a) Weldability of reinforcement other than ASTM A706.
            b) Single pass fillet welds with thickness less than or equal to 5/16 inch.
         3) Provide continuous inspection for:
            a) Other welds.
            b) Welds at mechanical reinforcing bar couplers and end anchors.

4) In addition to visual inspection, Owner may inspect reinforcing bar welds by other methods, including radiographic inspection.

5. Mechanical reinforcing bar couplers:
   a. Special inspection shall include, but is not limited to, the following items:
      1) Coupler model and identification.
      2) Couplers are installed in accordance with the requirements of the Engineering Report for each product.
      3) Confirmation of the following:
         a) Grade and size of reinforcing bars.
         b) Position of couplers.
         c) Insertion length of reinforcement.
         d) Tightening of bars in the couplers.
6. Records of inspections:
   a. Provide a written record of each inspection using forms acceptable to the Engineer and to the Building Official.
   b. Submit electronic copies of inspection reports to Engineer within 24 hours after completion of inspections.

3.06 NON-CONFORMING WORK

A. Before placing concrete, adjust or remove and re-install reinforcement to conform to the requirements of the Contract Documents.

END OF SECTION

CONCRETE COMPRESSIVE STRENGTH TEST REPORT

Report Number: CB191218.0064
Service Date: 05/15/25
Report Date: 05/23/25
Task:

1355 E Cooley Dr, Ste C
Colton, CA 92324-3954
909-824-7311

Client

Inland Concrete Products
Attn: Mike Woodward
PO Box 310959
Fontana, CA 92331

Project

Inland Concrete- Quality Testing
Various Locations
Various Cities, CA

Project Number: CB191218

Material Information

Specified Strength:

Mix ID:
Supplier:
Batch Time: **Plant:**
Truck No.: **Ticket No.:**

Sample Information

Sample Date: 04/08/25 **Sample Time:**
Sampled By: Client
Weather Conditions:
Accumulative Yards: **Batch Size (cy):**
Placement Method:
Water Added Before (gal):
Water Added After (gal):
Sample Location: CWD200
Placement Location:
Sample Description: 4-inch diameter cylinders

Field Test Data

Test	Result	Specification

Air Content (%):
Concrete Temp. (F):
Ambient Temp. (F):
Plastic Unit Wt. (pcf):
Yield (Cu. Yds.):

Laboratory Test Data

Set No.	Spec ID	Cyl. Cond.	Avg Diam. (in)	Area (sq in)	Date Received	Date Tested	Age at Test (days)	Max Load (lbs)	Comp Strength (psi)	Frac Type	Tested By
1	A	Good	4.00	12.57	05/15/25	05/21/25	43	93,020	7,400	2	DLH

Initial Cure: Unknown **Final Cure:** Field Cured

Comments: **Not tested for plastic unit weight.**

Services: Concrete cylinders cast by client and delivered to the laboratory for curing and testing. The service of Terracon is to provide compressive strength test results only. All other information is provided to us by our Client.

Terracon Rep.: Client
Reported To:
Contractor:
Report Distribution:
(1) Inland Concrete Products, Mike Woodward

Reviewed By:
Thomas Remmel
Laboratory Manager

Test Methods: ASTM C39, ASTM C1231

D340 Taper-Lock® Flange Coupler

Splicing

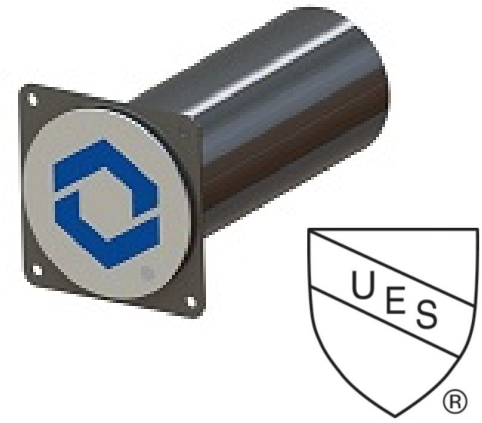
TECHNICAL DATA SHEET

DESCRIPTION

The D340 Taper-Lock simplifies the forming process by eliminating the need to cut or drill the formwork. It is used for segmental pours, precast applications, formed applications, and future work applications.

PRODUCT SPECIFICATION

- Extension of Taper-Lock product line
- Accommodates rebar sizes #4 through #18
- Available in Black, Epoxy, Galvanized or Stainless Steel
- Type 2 Splice
- Fastened to formwork by nails
- For use with Grade 60, 75 and 80 rebar (#4 - #11)
- For use with Grade 60 rebar (#14 and #18)
- A Plastic Flange Coupler is also available as a made to order item. Please call for details.



ER-319

FEATURES

- Complies with ACI, Caltrans, IBC, and Ministries of Transportation for Ontario and Quebec, Canada
- Approved for use in fatigue applications.

BENEFITS

- Reduces engineering design time
- Provides a safer working environment by eliminating protruding rebar ends through formwork
- Eliminates the need to cut or drill formwork
- Eliminates rebar congestion
- Provides Type 2 splicing capacities and simplifies load paths

TECHNICAL DATA

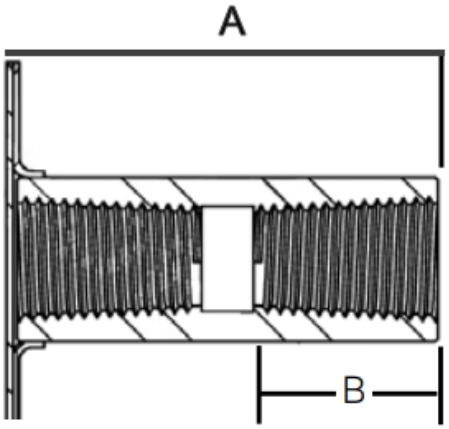
Bar Size	Bar Size - (mm)	Bar Size - (m)	"A" - (in)	"A" - (mm)	"B" - (in)	"B" - (mm)
#4	[13]	[10]	2.362	[60]	1.024	[26]
#5	[16]	[15]	2.756	[70]	1.221	[31]
#6	[19]	[20]	2.874	[73]	1.281	[32.5]
#7	[22]	-	3.189	[81]	1.399	[35.5]
#8	[25]	[25]	3.622	[92]	1.615	[41]
#9	[29]	[30]	4.016	[102]	1.812	[46]
#10	[32]	-	4.488	[114]	2.049	[52]
#11	[36]	[35]	4.921	[125]	2.246	[57.5]
#12	[40]	-	5.472	[139]	2.539	[64.5]
#14	[43]	[45]	5.827	[148]	2.719	[69]
#18	[57]	[55]	7.638	[194]	3.625	[92]

APPROVALS / COMPLIANCE

- ACI 318 Type 2
- IAPMO UES Listed (ER-319)
- Caltrans Service Splice
- Ministries of Transportation, Canada
- State Departments of Transportation
- AASHTO
- International Building Code (IBC)
- City of Los Angeles Department of Building and Safety

INSTALLATION

1. Ensure that threads are clean, in good condition, and conform to gauge requirements as published in the Taper-Lock Machine
   Operations Manual before assembly.
2. Assemble D340 into rebar hand tight (5 foot-pounds).



File Date: 5/8/2024

TECHNICAL DATA SHEET

HOW TO ORDER

- Specify: (1) quantity, (2) name, (3) rebar size, (4) finish, (5) Made in USA requirement.

  Example:
  500 pcs., D340 Taper-Lock® Flange Coupler, #6, Black, Made in USA not required.

  A Plastic Flange Coupler is available as a made to order item. Please call for availability, lead time and pricing.

  Please note: The D340 Plastic Flange Coupler must be used with a domestic coupler in plain, stainless-steel, ChromX, or hot dipped galvanized finishes to make a complete assembly.

ORDERING INFORMATION

TAPER-LOCK® FLANGE COUPLER - BLACK (MADE IN USA)

Product Code	Description	Weight
127790	#4 [13MM]	0.400 LB
127791	#5 [16MM]	0.520 LB
127792	#6 [19MM]	0.620 LB
127794	#8 [25MM]	1.390 LB
145104	#12 [40MM]	4.540 LB

TAPER-LOCK® FLANGE COUPLER - BLACK - IMPORT

Product Code	Description	Weight
127881	#4 [13MM]	0.400 LB
127882	#5 [16MM]	0.520 LB
127885	#6 [19MM]	0.620 LB
127888	#7 [22MM]	0.890 LB
127890	#8 [25MM]	1.390 LB
127892	#9 [29MM]	1.670 LB
127894	#10 [32MM]	1.980 LB
127896	#11 [36MM]	2.310 LB
128374	#18 [57MM]	9.620 LB

TAPER-LOCK® FLANGE COUPLER - EPOXY (MADE IN USA)

Product Code	Description	Weight
145105	#12 [40MM]	4.540 LB
127855	#14 [43MM]	4.700 LB
127856	#18 [57MM]	9.620 LB

TAPER-LOCK® FLANGE COUPLER - EPOXY - IMPORT

Product Code	Description	Weight
128343	#5 [16MM]	0.524 LB
128344	#6 [19MM]	0.640 LB

MANUFACTURER

Dayton Superior Corporation
1125 Byers Road
Miamisburg, OH 45342
Customer Service: 888-977-9600
Technical Services: 877-266-7732
Website: www.daytonsuperior.com

WARRANTY (ACCESSORIES)

Limited Warranty. Dayton warrants, for a period of 60 days from the date of shipment (three years from the date of shipment in the case of formwork, excluding any consumable Products included with such formwork), that Products and any associated application drawings and engineering services provided by Dayton ("Ancillary Services") will be free from defects in material and workmanship and, in the case of custom designed formwork, that the formwork will meet the specifications set forth in the design drawings approved by Dayton and Customer. Any claim under this warranty must be made in writing within such warranty period. If any Product and/or Ancillary Service covered by a timely claim are found to be defective, Dayton will, within a reasonable time, make any necessary repairs or corrections or, at Dayton's option, replace the Product. Unless pre-authorized by Dayton in writing, Dayton will not accept any charges for correcting defects or accept the return of any Product. This warranty will not apply to any Products that have been subjected to misuse, neglect, storage damage, misapplication, accident or any other damage caused by any person other than Dayton, or that have not been maintained in accordance with Dayton's specifications. THIS LIMITED WARRANTY IS IN LIEU OF ALL OTHER WARRANTIES AS TO THE PRODUCTS AND ANCILLARY SERVICES. DAYTON MAKES NO OTHER WARRANTIES OR GUARANTEES, EXPRESS OR IMPLIED, INCLUDING ANY WARRANTY OF MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE OR OTHERWISE. THE REMEDIES SET FORTH IN THIS SECTION ARE CUSTOMER'S EXCLUSIVE REMEDY FOR BREACH OF WARRANTY.