

mmh consulting engineers

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September 9, 1985

Mr. Herb Schwarz
Director/Facilities Planning
Northshore School District No. 417
9816 N.E. 183rd Street Bothell, WA
98011

Subject: Structural Improvements at
Woodinville Annex
Woodinville, Washington

Dear Mr. Schwarz:

We made our final visit to the site on September 9, 1985. All the work on the project appears to have been completed per the intent of the Contract Documents. We recommend the acceptance of the work performed.

Sincerely,



D. Bruce McLaren

NCH:sms

Macdonald-McLaren-Hammond, Inc.

Consulting Engineers
215 8th Avenue North
SEATTLE, WA 98109

LETTER OF TRANSMITTAL

Phone 622-4580 (area code 206)

TO Northshore School District No. 417

9816 N.E. 183rd

Bothell, WA 98011

DATE May 28, 1985	JOB NO. (ours) 85056
ATTENTION Herb Schwarz	
RE Woodinville Annex	

GENTLEMEN:

WE ARE SENDING YOU Attached Under separate cover via Ford Graphics the following items:

- Shop drawings Prints Plans Samples Specifications
 Copy of letter Change order bid documents

COPIES	DATE	NO.	DESCRIPTION
1			Original Specifications
			Sets of blue line
1			Set sepia
1			Copy of bid documents

THESE ARE TRANSMITTED as checked below:

- For approval Approved as submitted Resubmit _____ copies for approval
 For your use Approved as noted Submit _____ copies for distribution
 As requested Returned for corrections Return _____ corrected prints
 For review and comment _____
 FOR BIDS DUE _____ 19 _____ PRINTS RETURNED AFTER LOAN TO US

REMARKS _____

COPY TO File

SIGNED: D. Bruce McLaren

If enclosures are not as noted, kindly notify us at once.

WOODINVILLE ANNEX SPECIFICATIONS

1.0 GENERAL

SUMMARY OF WORK 01010

The work under this contract, in general, consists of reducing the seismic hazards as shown on the drawings and herein specified.

2.0 CONTRACT

- (a) The performance of the work for all work shall be under a single contract (general, mechanical, and electrical).
- (b) The General Requirements, Instructions to Bidders, and all other bidding requirements and conditions of Contract bound herein should be read as they are part of the Agreement to be entered into between Contractor and Owner.

3.0 SUBCONTRACTS

Division of these specifications into trade sections conforms roughly to customary practice. They are used for convenience only. The Architect is not bound to define the limits of any subcontract, and will not enter into disputes between the Contractor and his employees, including subcontractors.

4.0 COORDINATOR

It shall be the General Contractor's responsibility to coordinate the work of all trades, taking part in the execution of this Contract.

5.0 BUILDING CODES, REGULATIONS AND LAWS

The project is to be built to the requirements of all applicable codes, regulations and laws and to the satisfaction of all authorities having jurisdiction.

The Building Department follows the Uniform Building Code, 1982 Edition. This work is to be built under the provisions of this code. Regulations affecting working conditions and procedures as enforced by the Department of Labor and Industries are to be followed.

6.0 DESCRIPTION OF THE WORK

- 6.1 In general, the work consists of, but is not limited to: wall ties, chimney lowering, parapet removal or rebuilding, tuckpointing of specific areas, sealing and/or renewing copings, tying of structural members to the walls.

**End-Summary of Work 01010

1.0 ENUMERATION OF THE DRAWINGS

SCHEDULE OF DRAWING 01020

Following are the drawings, which shall form a part of this Contract.

Drawing No.

Description

1 Plot Plan, General Notes 2 Building Plan and Details

3 Elevations and Details

**End-Schedule of Drawing 01020

1.0 GENERAL

BASIC BID 01100

Each bidder shall in his bid, in the spaces provided therefor in the form of proposal, state:

- (a) His proposal for performing the work of the Basic Bid as defined in paragraph 2.0 below.

2.0 BASIC BID

Basic Bid includes all work shown on drawings and as specified.

**End-Basic Bid 01100

1.0 GENERAL

UNIT PRICES 01200

Each bidder shall, in his bid, in the spaces provided therefor in the Form of Proposal, list the following individual unit prices for materials in place.

Unit prices listed shall include all materials, labor equipment, overhead, profit, bonds, insurance and taxes, except Washington State Sales Tax.

2.0 UNIT PRICES

1. Price per square foot for adding tuckpointing of face brick with standard cement mortar.
2. Price per square foot for demolition of, and rebuilding a two brick wythe parapet wall. (walls more than two brick wythe will be priced proportional to the two brick wall.)
3. Price per individual unit of roof to wall tie.

**End-Unit Prices 01200

1.0 PROGRESS SCHEDULE

SUBMITTALS 01340

Refer to Special Conditions for required submittals. 2.0 ITEMIZED

SCHEDULE OF COSTS

Prepare, in form satisfactory to Architect, a complete breakdown of costs. Sum of all items shall be equal to contract price.

3.0 BONDS

Refer to General Conditions and Supplementary Conditions Sections for required bonds.

4.0 SHOP DRAWINGS

(Add to Article 20 of General Requirements)

Submit shop drawings, catalogues, brochures, samples and engineering data as are required by the specifications or requested by the Architect.

Shop drawings, brochures and samples shall be dated and contain:

Name and Location of the Project
Materials and Items
Complete Identification of Locations at which Materials are to be installed.

Submission of shop drawings, brochures and samples shall be accomplished by transmittal letter, in duplicate, containing project name and location, Contractor's and subcontractor's names, number of drawings and samples, titles and other pertinent data.

Unless otherwise specified, submit and resubmit, if necessary, shop and/or setting drawings in the form of one reproducible sepia transparency and two prints of each checked and signed by the Contractor to that effect. The Architect will review for conformance with the design concept and compliance with the Contract Documents only; will note required corrections and return the transparency to the Contractor. If acceptable, the two prints will be retained by the Architect for his use in coordination. The Contractor shall distribute prints of the corrected transparency to all concerned trades as required for prosecution of the work. Samples and brochures shall be submitted in the number that the Contractor requires to be returned, plus two for retention by the Architect/Engineer.

5.0 TEST SAMPLES

Furnish samples of materials for testing and selection if any when requested.

6.0 OTHER SUBMITTALS

Refer to Technical Sections following for required guarantees, warranties, and compliance certificates.

**End-Submittals 01340

1.1 Inspection By Public Officials

The Contractor shall call for all inspections required by public agencies having jurisdiction in the area. Final payment will not be made until the appropriate officials have made a final inspection and all deficient items have been corrected.

1.2 Inspections by Independent Agencies

Tests shall be made by a recognized and established testing agency. Tests will be made and paid for by the District. Copies of test results shall be distributed as follows:

- 1 Copy to School District
- 1 Copy to Engineer
- 1 Copy to General Contractor 1
- copy to Building Department

The contractor shall perform the following without additional cost to the owner.

- Provide material for testing as required.
- Provide labor as required to assist testing agency in performance of inspections and tests.
- Remove and replace, as directed, work not in accordance with specifications.

1.3 Concrete Inspection and Testing The designated agency shall:

Check placing and condition of all reinforcement in walls and chimneys before permitting placing of concrete or closing of forms.

Observe and assure compliance with specifications in placing and finishing of the above concrete work.

Cast at least one standard test cylinder of each day's or part of day's pour, properly mark and store same in accordance with ASTM C31-44 and C39-44.

**End-Inspection and Tests 01400

1.0 SPECIAL CLEANING

PROJECT CLOSE-OUT 01500

In addition to cleaning areas during construction, the Contractor, prior to requesting final inspection, shall:

- A. Leave entire construction area clean and ready for occupancy.

2.0 PUNCH LIST INSPECTION

- A. The Contractor shall call for a final punch list inspection only when all work required by the Contract Documents is complete.
- B. The Owner is not obligated to furnish a final punch list until the deficiencies are minor.
- C. The Contractor shall correct all deficiencies whether the school is occupied or not. If occupied, corrections shall be made at the Owner's convenience.
- D. Only one "final" punch list will be prepared. Deficiencies discovered after the punch list will be considered warranty items, but in cases where correction is necessary to continue the school program, the Contractor shall perform the corrections immediately.
- E. All items on the final punch list shall be corrected before an application for final payment will be processed. The Contractor shall notify the Architect, in writing, when all items have been satisfactorily complete.

3.0 SUBMITTALS

All required submittals must be received and accepted by the Architect prior to final acceptance of the project. Submittals include, but are not limited to, the following:

- A. Copies of all tests and inspections by the City, testing agencies and others not hired by the District.
- B. Guarantees and warranties, as required by the Contract Documents, including:
 - 1. Building permit set of documents.
 - 2. As-built marked set of documents and drawings.
- C. Certificate of Occupancy

Before application for final payment, furnish to Architect a Certificate of Occupancy, issued by a duly authorized official of the King County Building Department, stating that the work complies with the provisions of the Uniform Building Code.

**End-Project Close-out 01500

1.0 RELATED WORK

SELECTIVE DEMOLITION 02010

Refer to indicated sections for the following items:

Unit Masonry	04200
Carpentry	06100

2.0 GENERAL REQUIREMENTS

2.1 Demolition Responsibility

The general Contractor is responsible for all demolition work and must retain and direct all trades, workmen and specialists to accomplish the required work indicated on the drawings and as specified.

2.2 Protection

Keep those portions of existing buildings in which no work occurs clean and free of damage. Repair any damage that occurs to those areas to a like condition prior to damage.

2.3 Safety

Erect barricades to protect students or school personnel from gaining access or being exposed to hazards within the construction area. Coordinate work with the Architect and District and obtain written approval for types and locations of protective devices.

3.0 SALVAGE

3.1 Items For Re-Use

Carefully remove, clean, mark and store on the site. Clean all mortar, efflorescence and accumulated dirt from brick salvaged for re-use. All markings shall be removable and removed upon completion of the work.

3.2 Debris

Non-salvageable material shall be considered debris and disposed of by Contractor. All salvaged items remain the property of the District. The district will determine which items, if unused on the project, will be retained for their use and remove from the premises. Items declared surplus shall be disposed of by the Contractor.

4.0 EXECUTION

4.1 Damage During Demolition

Replace entirely or satisfactorily repair, as required by Architect, any portion of structure or finish damaged during removal.

**End-Selective Demolition 02C

1.0 RELATED WORK

CONCRETE FORMWORK 03100

Refer to individual sections for the following items:

Concrete Reinforcement 03200 Cast-in-
Place Concrete 03300 Unit Masonry
04200

2.0 GENERAL REQUIREMENTS

2.1 Building Code

Conform to requirements of Uniform Building Code, 1982 Edition.

2.2 Standard Specifications

Building Code Requirements for Reinforced Concrete ACI-318
Specification for Structural Concrete for Buildings ACI-301
Recommended Practice for Concrete Formwork ACI-347

Except as modified, conform to the latest edition of above referenced standards, copies of which may be obtained from Portland Cement Association.

3.0 PRODUCTS

3.1 Plywood Forms

PA-1-66, DFPA-EST B-B "Plyform" or approved, Class I and II, thickness as required to support concrete in accordance with referenced standards. Use for all exposed surfaces.

3.2 Board Items

"Standard" Grade D.F. or approved, T & G or shiplap, not wider than 8", use only for concealed work.

3.3 Steel Forms

Approved type steel forms may be used in lieu of wood, at Contractor's option.

3.4 Chimney Forms

Approved specialty Contractor's standard forming methods.

3.5 Form Ties

Burke "Wood Cone Snaptie," Superior "Wood Cone Snaptie," or approved for exposed surfaces. Snapties with washer spreaders of same manufacturer may be used for concealed faces. Wire ties and wood spacers not permitted.

3.6 Form Treatment

In accordance with ACI-301, Section 404, coat plywood forms with "Nor-Crete" or approved stainless form oil. Metal forms: coat with release compound, Williams "Coating Compound" or approved.

4.0 EXECUTION

CONCRETE FORMWORK 03100

4.1 Removal of Forms

Conform to ACI-301, Section 405; do not remove forms until concrete has hardened sufficiently to resist damage from removal and other construction operations.

**End-Concrete Formwork 03100

1.0 RELATED WORK

CONCRETE REINFORCEMENT 03200

Refer to indicated sections for the following items:

Concrete Formwork	03100	Cast-in-
Place Concrete	03300	Unit
Masonry		04200

2.0 GENERAL REQUIREMENTS

2.1 Building Code

Conform to Uniform Building Code, 1982 Edition.
Building Code Requirements for Reinforced Concrete ACI-318
Manual of Standard Practice for Detailing Reinforced
Concrete Structures (CRSI)
American Society for Testing Materials (ASTM)

Except as modified and supplemented, conform to the latest edition of above referenced standards.

2.2 Inspection and Tests Refer

to Section 01400. 2.3 Shop

Drawings

Submit in accordance with Section 01340. Prepare bending and placing diagrams in accordance with CRSI. Obtain approval prior to fabrication. Shop drawings shall be approved by General Contractor prior to submission to Architect.

2.4 welding

By AWS Certified welders.

3.0 PRODUCTS

3.1 Reinforcing Bars

ASTM A 615 Grade 40 and 60 specification for deformed bars.

4.0 EXECUTION

4.1 Reinforcing Steel

Reinforcing steel shall be free of flaking rust, loose scale or coating of any kind which will reduce bond. Steel reduced in section by corrosion shall not be used. Bend and place in strict conformity with the approved details. Secure steel rigidly in position to prevent displacement when concrete is poured. Provide support for reinforcing steel as follows:

- (a) In chimneys: Tie steel to stubs set in existing walls. Tie intersections or horizontals and verticals with 16 gauge steel annealed wire.

**End-Concrete Reinforcement 03200

1.0 RELATED WORK

CAST-IN-PLACE CONCRETE 03300

Refer to indicated sections for the following items:

Concrete Formwork 03100 Steel
Reinforcement 03200 Unit Masonry
04200

2.0 GENERAL REQUIREMENTS

2.1 Building Code

Conform to Uniform Building Code, 1983 Edition.
Building Code Requirements for Reinforced Concrete ACI-318
American Society for Testing and Materials (ASTM)

Except as modified and supplemented, conform to the latest edition of the above referenced standards.

2.2 Inspection and Tests

Refer to Section 01400 for required tests. Notify Architect or Inspector at least 24 hours before intended pour.

3.0 PRODUCTS 3.1

Cement

ASTM C 150-70 Type I. Use Type III only with prior approval. Do not use different type of cement or cement by more than one manufacturer interchangeably in same element or portion of work unless otherwise approved.

3.2 Coarse Aggregate

ASTM C33-71, Maximum size 1/5 of smallest dimension between forms of concrete member; 3/4 of minimum clear spacing between reinforcing bars, in no case exceeding 1-1/2 inch.

3.3 Fine Aggregate

ASTM C33-71. 3.4

Water

Clean, fresh and potable.

3.5 Admixtures

Air-entraining shall conform to ASTM C260 to entrain 3% to 6% air. Add to all exterior concrete chimney caps. Other admixtures only where permitted or required; submit proposed admixture and obtain approval before use. Use no calcium chloride.

3.6 Materials for Curing Concrete

Liquid membrane forming compound conforming to specification ASTM C 309.

Liquid chemical compound shall be free of petroleum resins or waxes and shall not reduce the adhesion of paint or other material to be applied to concrete. The compound shall be a sealer-hardener formulated for sealing, surface hardening and curing of concrete. The method and rate of application shall be in accordance with the manufacturer's recommendation.

3.7 Strengths

Assumed compressive strengths and locations of same noted on drawings.

4.0 EXECUTION

4.1 Proportioning

All concrete shall be proportioned in accordance with specification ASTM C 94.

4.2 Mixing and Delivery

Concrete shall be mixed and delivered in accordance with one of the methods set forth in specification ASTM C 94.

4.3 Placement

Concrete shall be conveyed from the mixer to the place of final location by methods which will prevent separation of materials. Once the concrete work has commenced, the work shall be continuous until the segment of work or section has been completed.

4.4 Curing

Concrete shall be protected from rain, heat, cold and mechanical injury, and shall not be allowed to dry out from the time the concrete is placed until completely cured. Curing shall be accomplished by moist curing, impervious-sheeting curing, liquid chemical curing or liquid membrane-forming compound curing. Liquid chemical compound shall not be used for curing concrete which is to be painted, waterproofed, tiled, or where coverings or other materials are to be bonded to the concrete surface. The concrete temperature shall be maintained between 50 F and 90 F and in moist conditions for at least the first 7 days.

5.0 FINISHES

5.1 Chimney Caps

Fill voids, holes and pockets with grout to match adjacent surfaces and to present a uniform and consistent appearance.

1.0 RELATED WORK

MORTAR AND GROUT 04100 Refer to indicated

sections for the following items: Unit Masonry 04200

2.0 GENERAL REQUIREMENTS

2.1 Building Code

Conform to requirements of Uniform Building Code, 1982 Edition. 2.2

Inspections and Tests

Refer to Section 01400 for required tests. Notify Architect or Inspector at least 24 hours prior to placement of mortar or grout.

2.3 Certificates

If ready-mixed mortar is used, furnish certificates from mixing plant stating that mortar conforms to these specifications.

3.0 PRODUCTS

3.1 Cement Mortar

- (a) Portland Cement: ASTM D 150 Type 1
- (b) Hydrated Lime: ASTM C 207
- (c) Aggregate: Sand comply with ASTM Specification C 144
- (d) Mortar Colors: Pure, inorganic mineral oxides, manufactured by Richard Coulston, J. Smith, 3-M Company, or approved
- (e) Waterproofing Admixture: Horn "Hydratite Plus", Master Builders "Omicron" or approved.

3.2 Epoxy Mortar (Grout)

Two component epoxy used with aggregate to produce epoxy mortar (grout), Concreative 1411 as manufactured by Adhesive Engineering Company.

3.3 Epoxy

Two component epoxy, Concreative 1411, mixed as required with Concreative 1001 LPL (an epoxy) to achieve desired consistency.

3.4 Expanding Grout

Shall be "Por-Roc" as manufactured by Lehn-Fink Industrial Products. Non-metallic expanding grout with volumetric expansion of at least 1.0% within 24 hours after which it becomes stable. Use as per manufacturer's instructions for installation of embedded dowels and anchors in masonry or concrete.

3.5 Refractory Mortar

Conforming to ASTM C 178 high duty "Tite-Bond" as manufactured by Mutual Materials.

4.0 EXECUTION

MORTAR AND GROUT 04100

4.1 Proportions

(a) Setting Masonry: Mortar types hereinafter specified refer to UBC Standards. Exterior walls, type S mortar. Chimneys, type M mortar.

(b) Poured Grouting Mortar: 2000 psi as per UBC Standard No. 24 - 21 - 73 and No. 24 - 22 - 73 test requirements. One part Portland Cement. 2-1/4 to 3 parts sand. Not more than 1/10 part hydrated lime or lime putty.

(c) Epoxy grout used and mixed as per manufacturer's instructions. Use for setting dowels and embedded items in chimneys and masonry walls.

(d) Epoxy mortar used and mixed per manufacturer's instructions. See drawings for location and use.

(e) Epoxy Grouting of Cracks: Where indicated on drawings, epoxy or epoxy grout shall be applied into the cracks in the face wythe of brick (or terra-cotta). Prepare cracks as detailed on the drawings.

Where indicated on the drawings, epoxy tuck-pointing shall be used as a mortar. Mortar shall be installed as per manufacturer's instructions. Joints shall match size and type of adjacent construction.

(f) Refractory mortar used for laying up firebrick. Contractor shall thin with water for dipped joints.

4.2 Additives

(a) Mortar Color: Add color selected by Architect, in proportions recommended by manufacturer, to mortar for all brick work.

(b) Waterproofing Admixture: Add, in proportions recommended by manufacturer, to mortar where exposed to weather or in contact with earth.

(c) Pozzolite 100 or Masterflow in poured grout as per manufacturer.

4.3 Mortar Mixing

Mix in accordance with ASTM C 270 specifications for Types S and M mortar. Proportions shall be as follows:

Type S: 1 part Portland Cement, 1/2 part lime putty 4 1/2 parts sand.

Type M: 1 part Portland Cement, 1/4 part lime putty, maximum, 3 parts sand.

Other mortars and grouts as hereinbefore specified or as per manufacturer's instructions.

5.0 EXECUTION

5.1 Where types of mortar are not indicated on the drawings, the Contractor shall use the standard cement mortar of the required strengths.

5.2 Technical assistance in the mixing and application of epoxy and epoxy mortar (grout) shall be obtained from the product manufacturer.

**End-Mortar and Grout 04100

1.0 RELATED WORK

UNIT MASONRY 04200

Refer to indicated section for the following items:

Mortar and Grout 04100

2.0 GENERAL REQUIREMENTS

2.1 Building Code

Conform to requirements of Uniform Code, 1982 Edition.

2.2 Inspections and Tests

Refer to Section 01400 for required tests. Notify Architect or Inspector at least 24 hours prior to setting of reinforced masonry.

2.3 Standard Specifications

Conform to ASTM Standard Specifications.

2.4 Storage of Materials

All materials whether reclaimed or new shall be dry, clean and in good condition and shall be protected so that it is in the same condition when used on the job.

2.5 General

Lay work to true lines, plumb and level, unless otherwise indicated; fill joints full of mortar. Lay out in advance so that no unit less than 4 inches in length occurs. In freezing weather, do no masonry work unless approved means are provided for heating materials, and masonry is protected from cold and frost until mortar has hardened. Anti-freeze ingredients not permitted. In rainy weather, do work only under cover. Before stopping work, cover tops of walls with non-staining waterproof covering. When work is resumed, clean top surfaces of loose mortar and wet if directed.

2.6 Cooperation

Build in work of other trades and other contractors, as required, without weakening or defacing masonry work, and as directed.

3.0 PRODUCTS

3.1 Reclaimed Face Brick

All unbroken reclaimed face brick shall be used for new construction as required by drawings and herein specified.

3.2 New Face Brick

Conforming to ASTM C 216 Type FBS Grade SW. Size, color and texture shall match brick or existing walls, or as approved by the Architect.

3.3 Metal Ties

Corrugated metal ties not less than 1" x 6" and 22 gauge. Ties and anchoring for terra-cotta shall be as detailed on drawings.

3.4 Reinforcing Steel

UNIT MASONRY 04200

Conforming to ASTM A 615 Grade 40 and 60. 4.0 EXECUTION

4.1 Restoration of Existing Brick Mortar (Face and Soft Brick)

See drawings for locations and quantities.

- (a) Remove all loose units, mortar and broken pieces in areas where indicated and replace with reclaimed or new units.
- (b) Cut back joints 3/4" in hard mortar using grinders or suitable tools that will assure no damage to edges or corners of masonry. In loose or deteriorated mortar cut back a minimum of 1 1/2" or to sound mortar.
- (c) After cutting, thoroughly flush joint with water under moderate pressure.
- (d) Force mortar in recess with narrow jointer. Tool to provide a mortar joint to match adjacent joints.
- (e) Where epoxy mortar is specified (on drawings), mix, place and tool as per manufacturer's instructions.

4.2 UNFIRED BRICK

No unfired or reclaimed soft brick shall be reused on the work.

4.3 CLEANING

Thoroughly clean exposed surfaces of brick and terra-cotta. If acid is used, extreme care shall be taken to protect all metal items, completely neutralize if acid is spattered on them.

**End-Unit Masonry 04200

1.0 RELATED WORK

STRUCTURAL METAL 05100

Refer to indicated sections for work in other sections:

Submittals	01340
Inspections and Tests	01400

2.0 GENERAL REQUIREMENTS 2.1

Building Code

Requirements of Uniform Building Code, 1982 Edition, if more rigid than those herein, govern.

2.2 Standards

Fabrication and erection of structural steel shall conform to the current AISC "Specifications for the Design, Fabrication and Erection of Structural Steel for Building". Welders and welding procedures shall conform to requirements of AWS for welding in building construction.

2.3 Inspections and Tests

Refer to Section 01400 for requirements.

2.4 Shop Drawings

Shop drawings shall be submitted for approval in accordance with Section 01340. Drawings shall include component parts, including the location, type and size of all bolts and welds. All welds shall be indicated by standard welding symbols of AWS.

2.5 Job Conditions

Verify all conditions and dimensions by field inspection and measurements. Cooperate with other trades in placing steel supporting members. Install accurately in order to obtain correct finish lines.

3.0 PRODUCTS

3.1 General

Unless specified otherwise, materials shall conform with the AISC specifications.

3.2 Carbon Grade Steel for all-purpose bolted or welded construction shall conform to ASTM A 36, including lintels.

3.3 Hollow Structural Tubing (if used) shall be hot rolled from weldable grades of carbon steel conforming to ASTM Specification A36.

3.4 Bolts shall conform to ASTM Specification A307.

3.5 Beveled Washers for American standard beams and channels shall be square or rectangular, shall taper in thickness, and shall be smooth.

3.6 Welding Electrodes and Rods shall conform with AWS.

4.0 FABRICATION

STRUCTURAL METAL 05100

4.1 Standards

Fabrication shall be in accordance with applicable provisions of the AISC Specification. Workmanship shall be equal to standard commercial practice in modern structural shops. Fabrication shall be done in the shop to the greatest extent possible.

4.2 Painting

Except as specified, all structural and miscellaneous metal, except steelwork embedded in concrete or mortar, shall be shop painted with a rust inhibitive type primer such as Rust-Oleum Corporation's No., 769 "Damproof Red", or as approved by Architect. Surfaces to be welded shall not be coated within three inches of the weld, prior to welding. Surfaces exposed to the weather shall be given two coats of flat enamel to match color of adjacent materials (red an brick etc.)

**End-Structural Metal 05100

1.0 RELATED WORK

CARPENTRY 06100

Refer to indicated sections for the following items:

Concrete Formwork	03100
Moisture Protection	07500

2.0 GENERAL REQUIREMENTS 2.1 Standards

- (a) 1980 Standard Grading Rules for West Coast Lumber, by West Coast Lumber Inspection Bureau.
- (b) National Design Specification for stress grade lumber and its fastenings, latest edition.
- (c) Softwood plywood - Construction and Industrial: Voluntary Product Standard PS 51.
- (d) American Wood Preservers Association Standard TT-W-571.
- (e) Grade Marks: Identify all lumber and plywood by appropriate official grade mark.
- (f) Building Code: Uniform Building Code, 1982 Edition.

2.2 Moisture Content

Framing lumber 2 inches and less : 19% maximum.
Boards: 19% maximum.
Decking 2 inches or more in thickness: 15% maximum.
Framing lumber over 2 inches thick: 19% maximum.

3.0 PRODUCTS

3.1 Preservative Treatment

The following items shall be pressure treated with water-borne preservative to conform with American Wood Preservers Association Standard AWPA LP-2. Wood shall be redried to maximum moisture content of 19%. Apply liberal coat of same material to surfaces cut after treatment.

- (a) wood plates, sills and bucks in contact with masonry or concrete.
- (b) Nailers, edge strips and cants for roof decks.

3.2 Plywood Sheathing

Plywood roof sheathing shall be Standard Grade with Exterior Glue, thickness to match existing roof board thickness, Bearing and Identification Index of 32/16 or greater. Plywood shall be used as shown on drawings.

- 3.3 Framing shall be OF KD and have an allowable unit stress of 1250F or greater, or as indicated on the drawings.

- 3.4 Building paper shall conform to specification UU-B-790, Type I, Grade D, style I.

CARPENTRY 06100

3.5 Rough hardware, unless otherwise indicated or specified, shall be of the type and size necessary for the project requirements. Sizes, types, and spacing of fastenings or manufactured building materials shall be as recommended by the product manufacturer unless otherwise indicated or specified.

- (a) Bolts, nuts, and studs shall conform to the applicable requirements of specification FF-B-571 and FF-B-575.
- (b) Expansion shields shall conform to the applicable requirements of specification FF-S-325. Except as shown otherwise, maximum size of devices in Groups IV, V, VI, and VII shall be 3/8 inch.
- (c) Lag screws and lag bolts shall conform to applicable requirements of specification FF-B-561.

(d) Wire nails and staples shall conform to specification FF-N-105.

4.0 EXECUTION

4.1 General

Framing lumber and other rough carpentry shall be fitted closely, set accurately to the required lines and levels, and shall be secured in place in a rigid and substantial manner. All framing members, not indicated or specified, shall be provided as necessary for the proper completion of the work.

Install blocking, backing, nailers and the like as indicated on the drawings. Where reconstruction is specified, rebuild with same size and kind of members as existing.

"End-Carpentry 06100

1.0 RELATED WORK

ROOFING AND SHEET METAL 07500

Refer to indicated section for related work:

Unit Masonry 04200

2.0 GENERAL REQUIREMENTS

2.1 Existing Roofs

Where penetrations, openings or reconstruction occurs, the Contractor shall match in kind the types of roofing and sheet metal flashing exists.

2.2 Building Code

Conform to requirements of Uniform Building Code, 1982 Edition.

2.3 Standards

Conform to specified plates (or as modified to suit existing conditions) of the Architectural Sheet Metal Manual, as published by the Sheet Metal and Air Conditioning Contractors National Association, Inc. (SMACNA), latest edition.

2.4 Guarantee

Guarantee all work included in this Section for a period of two (2) years after date of Final Acceptance of the work. During that period, all defects due to faulty materials or workmanship and damage to other work, resulting therefrom or the correction of same, shall be remedied at the Contractor's expense.

3.0 BUILT-UP ROOFS 3.1

Protection

Provide temporary cover over openings as necessary to protect existing structure.

3.2 Rating

Provide materials and roofing systems which have been tested and conform to Factory Mutual systems latest edition of 1-28 requirements for Class I roofs.

3.3 Patches

Joining to and matching built-up existing roofs: clean surface of existing roofs back five (5) feet from edges. Strip existing plies back 12" shingle fashion, lap each succeeding sheet of new roofing 12" over preceding ply. Each ply shall be hot mopped solidly to underlying plies, so that nowhere will felt touch felt. the joining area shall be no lower than existing surfaces.

3.4 Weather Conditions

Proceed with roofing work only when weather conditions are in compliance with manufacturer's limitations.

4.0 FLASHINGS

ROOFING AND SHEET METAL 07500

4.1 General

Flashings shall be provided in the angles formed where roof decks abut walls, roof penetrations, and other vertical surfaces, and where necessary to make the work watertight. Base flashings shall be built-up for built-up roofing and metal for shingle roofing. Cap flashings shall be metal. Cant strips of treated wood or inorganic fiber shall be provided for base flashings where roofs intersect vertical surfaces. No removed flashings or copings shall be re-used.

4.2 Standards

- (a) Conform to construction and recommendations set for in Architectural Sheet Metal Manual (SMACNA).
- (b) Where more than one "figure" or illustration or method of construction is shown on any page or pages referenced hereinafter from the Standard Manual and such "figure" or illustration or method is not specifically noted hereinafter or shown on the project drawings, use the "figure" or illustration or method most nearly matching that shown on the project drawings as applicable, or most nearly matching existing conditions, but subject to approval of the Architect. Where such "figures" or illustrations or methods are very nearly alike, it is assumed that the more costly item has been included in the bid.
- (c) The following plate numbers most nearly match the existing conditions but the Contractor shall make modifications as necessary to accomplish his work, upon approval of the Architect.

Plate Numbers 62, 64, 68 (alternate 1), 70, figure A as applicable, 73.

Provide Reglets for chimney counterflashings. Do not thru-brick counterflashings chimneys.

Base and Counter Flashing Systems: 24 gauge galvanized steel.
Valley Flashing: 24 gauge galvanized steel. Roof Penetrations:
24 gauge galvanized steel.

New formed metal copings shall be of 20 gauge galvanized steel formed to match existing. Installation and construction of coping shall be as per "figure" of the manual most nearly matching the existing.

5.0 FINISH

Where existing sheet metal flashings, copings, and the like are painted, the new material shall be painted to match for the full extent of the new work. Metal shall be painted as follows, or as approved:

Prime Coat:	1 coat Rust-Oleum No. 769.
Finish Coat:	1 coat Dutch Boy's High Lustre exterior enamel. Color to match existing.

Refer to indicated sections for the following items:

Roofing and Sheet Metal	07500
unit Masonry	04200

2.D GENERAL REQUIREMENTS

2.1 General

Caulking or sealant shall be provided in joints as indicated or specified. Materials shall conform to the respective specifications and other requirements specified. The work specified herein shall be performed by workmen skilled in such work.

2.2 Environmental Conditions

The ambient temperatures shall be within the limits of 40 and 90 degrees F when the caulking and sealants are applied.

2.3 Delivery and Storage

Materials shall be delivered to the job in the manufacturer's original unopened containers. The containers shall include the following information on the label:

Supplier, name of material, formula or specification number, lot number, color, date of manufacture, mixing instructions, shelf life, and curing time when applicable at the standard conditions for laboratory tests. All materials shall be carefully handled and stored to prevent inclusion of foreign materials, or exposure to temperatures exceeding 90 degrees F. Caulking compound or components outdated as indicated by shelf life shall not be used.

2.4 Sealant Formulation

Each container brought to the jobsite with a different sealant formulation shall be marked for the intended use. For each intended use, the color shall be one of the manufacturer's standard colors as closely matching the adjacent surfaces as possible. The sealant formulation shall conform to the requirements specified herein.

3.0 PRODUCTS

3.1 Sealants

Sealing compounds conforming to TT-S-227 and TT-S-230 Class A shall be used on exterior applications for sealing coping joints and expansion and other movable joints in terra-cottas, masonry, concrete and metal where shown or where cyclic movement is anticipated.

Sealing compounds shall be used where:

- (a) Openings where items pass through exterior walls.
- (b) Metal-to-metal joints where sealing or "caulking" is shown or specified.
- (c) Joints occurring between ends of copings, facias and/or copings and adjacent walls.

3.2 Primer

As recommended by manufacturer of sealant.

3.3 Backup Material

As recommended by manufacturer of sealant.

4.0 EXECUTION

4.1 Caulking and Sealant Terminology

Regardless of terminology used on drawings, where "caulking" or "sealant" is called for, use sealant as specified herein.

4.2 Surface Preparation

The surfaces of joints to be sealed shall be dry. Oil, grease, dirt, chalk, particles of mortar, dust, loose rust, loose mill scale, and other foreign substances shall be removed from all joint surfaces to be sealed. Oil or grease shall be removed with solvent and surfaces shall be wiped with clean cloth.

4.3 Masonry and Concrete Surfaces

Laitance, efflorescence and loose mortar shall be removed from the joint cavity.

4.4 Steel Surfaces

Steel surfaces to be in contact with sealant shall be scraped and wire brushed to remove loose mill scale. Protective coatings on steel surfaces shall be removed by a solvent that leaves no residue.

5.0 INSTALLATION

5.1 Comply with sealant manufacturer's printed instructions, except where more stringent requirements are shown or specified and except where manufacturer's technical representative direct otherwise.

5.2 Prime or seal the joint surfaces wherever shown. Do not allow primer/sealer to spill or migrate onto adjoining surfaces.

5.3 Employ *only* proven installation techniques: Except as otherwise indicated, fill sealant rabbet to a slightly concave surface, slightly below adjoining surfaces. Where horizontal joints are between a horizontal surface and a vertical surface, fill joint to form a slight cove, so that joint will not trap moisture and dirt.

5.4 Install sealant to depths shown or, if not shown, as recommended by the sealant manufacturer.

5.5 Cleaning

The surfaces adjoining the caulked and sealed joints shall be cleaned of smears and other soiling resulting from the caulking and sealing application as work progresses.

End