# PROPOSED GALERIES TOWER MANILA

**NATIVIDAD LOPEZ ST. COR. CABRAL ST. MANILA**

**ARCHITECTURAL**

# SPECIFICATION

**2024**

## GRAND TAIPAN LAND DEVELOPMENT INC.

ARCH. ALLAN C. CHUA
REG. NO. 0023165
PTR NO. 8453438
TIN NO. 289-222-941
DATE. 01.03.2024

A Place Bldg., Coral Way Drive, CBP1, Island A, MOA Complex, Pasay City
Tel No.: 8085[redacted]

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**PROJECT : PROPOSED GALERIES TOWER MANILA**
**OWNER : GRAND TAIPAN LAND DEVELOPMENT INC.**
**LOCATION : NATIVIDAD LOPEZ ST. COR. CABRAL ST. MANILA**
**SUBJECT : INSTRUCTION TO BIDDERS**

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1. DATE & PLACE FOR SUBMISSION OF PROPOSALS

   1.1 Submission of proposals shall be stated in the Invitation to Bid

2. PARTIES WHO MAY BID

   2.1 By invitation only, Competency of bidders shall be selected by the Architect, the engineer and the Owner.

3. PREPARATION OF BID

   3.1 Bids must be prepared without the assistance from any staff of the Architect, the engineer and the Owner.

   3.2 Proposals shall be submitted on forms furnished and attached hereto, in strict compliance with requirements of the invitation to bid and these instructions. Special care should be exercised in the preparation of bids. All designations and prices in the proposal forms shall be suitably filled in.

   3.3 Bidders or their authorized agents expected to examine the maps, drawings and specifications furnished by the Architect and the Engineer, and to visit the locality of the work. Bidders must make their own estimates of the facilities and difficulties attending the execution of the proposed contract including local conditions, uncertainty and all other contingencies.

   3.4 Erasures or other changes in the proposal must be explained or authenticated with the signature or initial of the bidder.

4. SIGNATURE TO BID

6.2 No responsibility shall be attached to the Architect, the Engineer and/or the Owner or its representatives for premature opening of any bid not properly addressed as required. Unless specifically authorized, telegraphic bids will not be considered, but modifications by telegraph of bids already submitted shall be considered, if received prior to the time set.

7.0 POSTPONEMENT OF OPENING THE BIDS

7.1 The Architect, the Engineer and/or the Owner reserve the right to postpone the date for the prosecution and opening of bid proposals.

7.2 Written notice of any such postponement shall be given to each prospective bidder.

8.0 WITHDRAWAL OF BID

8.1 If the bidder wishes to withdraw his bid before the time set, he mat do so without prejudice to himself by communicating his purposes in writing to the Architect, the Engineer and/or the Owner. And his bid, when reached, shall be handed to him or his authorized representative, unopened. Negligence on the part of the bidder in preparing the bid confer no rights for the Architect, the Engineer and/or the Owner.

9.0 BIDDERS INTERESTED IN MORE THAN ONE BID

9.1 If the Architect, the Engineer and/or the Owner finds reasonable grounds to believe that any bidder is interested in more than one bid for the proposed work under this bonding, it may reject any or all bids in which he is interested.

10.0 PRICES IN THE PROPOSAL

10.1 In the event of discrepancy between prices quoted in the proposal in words and those quoted in figures, the words shall prevail. However, inconsistent or Irregular bids shall constitute a rejection of the proposal.

11.0 ACCEPTANCE OR REJECTION OF PROPOSALS

11.1 The contract will be awarded to the bidder whose proposal appears to be the most advantageous to the Owner in accordance with its exclusive judgement and discretion, and it is in no way bound to accept the highest or lowest proposal as the case maybe. The Owner, however, reserves the right to reject any and all proposals. Without limiting the generality of the foregoing, any proposal which is incomplete, vague, or irregular may be rejected Omission of any or more items in the prices schedule maybe rejected.

11.2 The Owner also reserves the right to waive any defect of informality in the proposals received or to disregard any proposal, which is obviously unbalanced or patently too low, compared to the Owner's estimates.

11.3 The Owner also reserves the right to reject the proposal of the previously failed to perform properly or complete on time any contract of similar nature, or the proposal of bidder who is clearly not in a position to perform the work stipulated in the proposed contract.

11.4 Where bids are not qualified by specified limitations, the Owner reserves the right of awarding all or any of the items according to its interest, in accordance with its exclusive judgement and discretion. Unless otherwise required in the specifications, bids for suppliers shall be submitted in accordance with the numbered item or items given in the schedule.

11.5 The acceptance of the proposal will be through a notice in writing signed by the owner and no other shall constitute the acceptance of the Owner and no other shall constitute the acceptance of the proposal. The acceptance of the proposal shall be bind the successful bidder to execute the contract and should be fail or neglect to do so, he shall be liable on his bond as provide in these instructions. The rights and obligations provided in the contract shall become effective and binding upon the parties only with its formal execution.

11.6 Any action required or permitted to be taken, and any document required or permitted to be executed, under the contract documents on behalf of the owner can be taken or executed only by the person duly authorized in writing by them.

## 12. EXECUTION OF THE CONTRACT AND DAMAGES FOR FAILURE TO EXECUTE

12.1 The bidder whose proposal is accepted will be required to appear at the Office of the Owner in person

20.1 Prior to the execution of the contract, the Contractor shall execute and deliver in favor of the Owner a performance bond equivalent to the downpayment or an amount specified by the Owner to secure complete and faithful performance of its obligations under this agreement. The bond shall be acceptable to the Owner and in effect for the duration of the construction.

20.2 At approximately 50% completion of the project, the contractor shall execute and deliver in favor of the Owner a Payment Guarantee Bond equivalent to 10% of the contract price to guarantee payment of materials and wages, respectively provided, however, the said bond shall continue remain in force and effect for one year after final acceptance of the work by the Owner. The bond shall have the prior acceptance of the Owner.

21.0 ADDITIONAL SECURITY

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21.1 Should any bond for the performance of this contract become unacceptable to the Owner, the Contractor must promptly furnish additional security as may be required from time to time, to protect the interest of the Owner and/or persons supplying labor and materials in the prosecution of the work contemplated by the Contractor.

**END OF SECTION**



[redacted]

**PROJECT : PROPOSED**

2.2 Total completion and turn-over of contract works shall be _____ calendar days after signing of contract.

3.0 PARTIAL RELEASE OF RETENTION / LIQUIDATED DAMAGES

3.1 Ten percent (10%) of each monthly progress payment shall be retained by the Owner until completion of concreting. Fifty percent (50%) of the total contract amount retained shall be released to the General Contractor upon completion and acceptance of the concreting works. Thereafter, the total retention shall be equivalent to five percent (5%) of the total completed work.

In case of delay, the Contractor shall pay the Owner liquidated damages in the following amount:

a. For failure to complete the structural shell at specified _____ calendar days contract period General Contractor shall pay the Owner liquidated damages equivalent to Five Hundredths of One Percent (0.005%) of total contract amount per calendar days of delay.

b. For failure to complete the total contract works at the specified _____ calendar days contract period, the General

c. Contractor shall pay the Owner liquidated damages equivalent to tenth of One Percent (0.01%) of the contract amount per calendar day of delays.

4.0 BONDS AND INSURANCE

4.1 Performance Bond

Upon signing of contract, the Contractor shall secure at its own expenses and deliver to the Owner a Performance Bond posted by a domestic bonding company duly

licensed in the Philippines in the amount equivalent to twenty Percent (20%) of the total contract amount or equivalent to downpayment given by the Owner whichever is higher.

4.2 All-Risk Insurance

The Contractor shall secure at its own expense within Twenty days (20) after signing of contract a Contractor's all-risk insurance by a company acceptable to the Owner in the amount equivalent to its total contract price.

4.3 Guarantee Bond

The Contractor shall upon Owner's acceptance of the works and prior to final payment, obtain at its own expense a guarantee bond equivalent to ten (10%) of the total contract amo

Total cost of additional work shall be based on the bare cost of materials and labor plus 15% mark-up to cover overhead and profit plus 10% VAT on top of labor and overhead profit. Prices of materials shall be based at the time the change was made by the Owner.

5.2 Deletions
Total cost of deleted work shall be the summation of bare cost of materials and labor plus 12% mark-up corresponding to the reduction in overhead, profit and tax.

Prices of materials and labor shall be based at the time the bid submitted by the Contractor.

6.0 Bids shall be fixed and shall not be subject to escalation regardless of increase in price of fuel, devaluation and other causes except due to an official increase in minimum wage or allowances as indicated in the proposal form.

7.0 MISCELLANEOUS
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7.1 The Contractor shall undertake the securing and payment of building permit and final occupancy permit.

7.2 Owner-supplied plumbing fixtures shall be installed by the Plumbing Contractor. However, owner-supplied toilet accessories such as soap holder shall be installed by the General Contractor.

[redacted]

**SECTION 00050**

**GENERAL CONDITIONS**

## PART 3.0 RELATIONSHIPS BETWEEN THE SPECIFICATIONS AND DRAWINGS

3.1

PART 8.0 PERMITS AND LICENSES

8.1 All necessary 1

## PART 13.0 AUTHORITY OF THE PROJECT MANAGER/CONSTRUCTION MANAGER

13.1 The Project Manager / Construction Manager shall decide on any and all questions, which may arise as to the quality and acceptability of materials furnished and work performed and as to the manner of performance and rate of pte8T/F2 75 Tf l61e8T/F2 611.99998dek88e12 0 e

18.2 If, however, at any semi-final inspection, any work in whole or in part is found unsatisfactory, the Project Manager or Construction Manager shall give the Contractor instructions, which he shall forthwith comply with and execute. Another inspection shall be made which shall constitute the final inspection if the work has been found to be completed satisfactorily.

## PART 19.0 SUPERINTENDENCE AND SUPERVISION

19.1 The Contractor shall assign a competent Project Engineer and necessary assistance satisfactory to the Project Manager / Construction Manager and Project Technical Group. The Superintendent shall represent the Contractor at his absence, and all directions given to him by the Project Manager / Construction Manager shall be as binding as if given to the Contractor.

## PART 20.0 CONTRACTOR'S LIABILITY INSURANCE

20.1 The Contractor shall acquire such insurance as will protect him from claims under Workmen's Compensation Act and from any other claims for damages for personal injury, including death, operations be by himself or by any sub-contractor or anyone directly or indirectly employed by either of them. Certificates of such insurance shall be filed with the Owner, for approval as to adequacy or protection. Such policy shall be secured from the Insurance Company designated by the Owner.

## PART 21.0 PERFORMANCE BONDS AND PAYMENT GUARANTEE BONDS

21.1 The Contractor shall deliver to the Owner a

24.3 Payments shall be made by the Owner fifteen (15) days after evaluation of the billings by the Project Manager / Construction Manager and recommended for payment by the Project Technical Group of the Owner.

## PART 25.0 WARRANTY

25.1 The Contractor guaranteed the workmanship and the materials supplied by him for a period of one (1) year counted from date of completion and acceptance by the Owner of all works.

25.2 Any defect to work contemplated in this Contract which may arise during the one (1) year warranty period shall be for the account of the Contractor.

## PART 26.0 RETENTION

26.1 The Owner shall retain ten (10%) percent of the Contractor's Billings until the expiry of the one (1) year warranty period.

## PART 27.0 RELEASE OF RETENTION

27.1 The Owner may, upon representation by the Contractor, release said percentages before expiry of the one (1) year warranty period, provided the Contractor submits a guarantee bond from the FGU Insurance Corporation in favor of the Owner for an amount equivalent to the retention to be released. Such guarantee bond shall be enforced during the warranty period and shall be cancelled upon advice by the Owner.

## PART 28.0 COMPREHENSIVE GENERAL LIABILITY (CONTRACTOR'S ALL RISK)

28.1 The Contractor shall hold the Owner free and harmless from any claim for injury or damages caused by third parties and for this purpose he shall secure at his own expense a comprehensive



contract a Contractor's All

F. Hangers, support & miscellaneous materials

G. Permits, licenses, bonds, insurance, MWSS expenses, etc

TOTAL BID AMOUNT: _____

AMOUNT IN WORDS: _____

**3.0 CONSTRUCTION PERIOD:**

Completion and turn-over of contract works shall be within _____ calendar days after signing of contract.

**4.0 LIST OF OWNER-SUPPLIED & EXCLUDED ITEMS :**

4.1 Supply of plumbing fixtures, i.e., kitchen sink , water closet, lavatory urinal and accessories shall be by Owner. However, installation shall be by the Plumbing Contractor.

4.2 Supply of sanitary pumps shall be by others. However, installation including the supply of necessary, connecting pipes, valves, flexible connectors and fittings shall be Plumbing Contractor.

It is understood that any item required to complete the subject project mentioned in either plans, specifications and other related contract documents but not specifically included in the above list shall be deemed covered by this proposal.

**5.0 ADJUSTMENT IN LABOR COST :**

Bids shall be based on current labor wages. In the event of an official increase in minimum wage or compulsory allowances during the construction period. The contract price shall be adjusted accordingly.

If there shall be such an increase prior to start of work, the total increase in the contract price for every One Pesos (P1.00) increase in minimum wage or allowances shall be fixed amount as indicated below :

"Total Labor Adjustment for Plumbing Works per One Pesos (P1.00) increase in minimum wage or allowance." P _____

If there shall be an increase in minimum wage or allowances at anytime during the construction period, the adjustment in labor cost shall be made in proportion to the remaining contract period.

SUBMITTED BY :
FIRM :_____
BY :_____
TITLE :_____
SIGNATURE :_____
DATE :_____

**END OF SECTION**

b. All-Risk Insurance:

The Contractor shall secure at its own expense within Twenty (20) calendar days after signing contract a Contractor's All-Risk Insurance from a Surety Company acceptable to the Owner in the amount equivalent to its total contract price.

c. Guarantee Bond:

The Contractor shall upon Owner's acceptance of the work and prior to final payment, obtain at its own expense a Guarantee Bond equivalent to Ten Percent (10%) of the total contract price from a Surety Company acceptable to the Owner to cover a period of One (1) year after completion and acceptance of work.

9.0 MISCELLANEOUS:
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a. A down payment equivalent to Twenty (20%) Percent of the contract amount shall be made to the Contractor upon signing of contract.

**PROJECT : PROPOSED GALERIES TOWER MANILA**
**OWNER : GRAND TAIPAN LAND DEVELOPMENT INC.**
**LOCATION : NATIVIDAD LOPEZ ST. COR. CABRAL ST. MANILA**

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**1.0 SCOPE OF WORK:**
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Lump sum proposal for the supply of labor, materials, tools and equipment and supervision for the complete mechanical, roughing-ins excluding owner-supplied items listed herein for Proposed **GALERIES TOWER MANILA** in accordance with specifications and other related contract documents as Prepared by ASYA DESIGN PARTNER.

**2.0 BID AMOUNT:**
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| | **Material** | **Labor** | **Total** |
|---|---|---|---|
| A. Mechanical equipment | | | |
| 1. PAHU / ACCU | | | |
| 2. FANS | | | |
| 3. WAC | | | |
| B. Ventilation System | | | |
| C. Refrigerant System | | | |
| D. Electrical System & controls | | | |
| E. Hangers, supports, drains & miscellaneous materials | | | |
| F. Permits, licenses, bonds, insurance, etc. | | | |

TOTAL BID AMOUNT :_____

AMOUNT IN WORDS :_____

PROPOSED GALERIES TOWER MANILA ASYA DESIGN PARTNER
NATIVIDAD LOPEZ0 gTVZ8-2(N)-6(E) 0.000I-6( 018 m0 5(OS)611.1986 0.000018 lW nQ gq0 0.000018 m0 792 l611.999986 792 l611.999986 0.00001

**SECTION 00090**

**INSTRUCTION TO BIDDERS ON ELECTRICAL WORKS**

**PROJECT : PROPOSED GALERIES TOWER MANILA**
**OWNER : GRAND TAIPAN LAND DEVELOPMENT INC.**
**LOCATION : NATIVIDAD LOPEZ ST. COR. CABRAL ST. MANILA**

These Instructions to Bidders are hereby made part of the proposal and contract documents. Bidders are hereby advised to consider the same in the preparation of their bid:

1.0 The Electrical Contractor shall undertake the securing and payment of electrical permits and other government fees.

2.0 TEMPORARY POWER:
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The Bidder for General Constructions shall include in their bid cost t15( )-122(a)10(p)-4(re)-9998li2(t)10(f)-2( )-2(t)10(f)-( )-2(s

10.0 For failure to complete the total contract works at the specified _____ calendar day contract period, the Electrical Contractor shall pay to the Owner an amount equivalent to One Tenth of One Percent (0.1%) of the contract amount per calendar day of delay as liquidated damages.

11.0 BONDS AND INSURANCES

11.1 PERFORMANCE BOND

Upon signing of contract, the Contractor shall secure at its own expense and deliver to the Owner a Performance Bond in the form of a Surety Bond posted by a domestic bonding company acceptable to the Owner duly licensed in the Philippines in the amount equivalent to Twenty Percent (20%) of the total contract amount.

11.2 ALL RISK INSURANCE

The Contractor shall secure at its own expense within Twenty (20) calendar days after signing of contract a Contractor's All-Risk Insurance from a company acceptable to the Owner in the amount equivalent to its total contract price.

11.3 GUARANTEE BOND

The Electrical Contractor shall upon Owner's acceptance of the work and prior to final payment, obtain at its own expense a Guarantee Bond equivalent to Ten Percent (10%) of the total contract amount from a Surety Company acceptable to the Owner.

12.0 MISCELLANEOUS

12.1 All roughing-ins of the auxiliary systems, i.e. Intercom, MATV system shall be by the Electrical Contractor.

12.2 In general, all materials to be used shall be of first class quality. The Contractor

shall be required within Thirty (30) calendar days after signing of contract to submit samples of materials that they intend to use for approval.

12.3 A downpayment equivalent to Fifteen Percent (15%) of the contract amount shall be made to the Contractor upon signing of contract.

12.4 Preparation of "As-Built" plans with three (3) sets blue print, testing and adjustments of the entire electrical system shall be included in the proposal.

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PROPOSAL FORM : ELECTRICAL WORKS

SUBMITTED BY : _____

_____

_____

DATE : _____

APPROVED BY:

_____

_____

DATE : _____

[redacted]



**2.0 OWNER-SUPPLIED ITEMS :**

1. All lighting fixtures
2. Water Heater
3. Telephone
4. Video Phone
5. CCTV
6. _____
7. _____
8. _____

**3.0 BID AMOUNT:**

3.1 PROPOSAL "A":

I. Supply of Materials

| | | |
|---|---|---|
| 1.0 | Conduit works, boxes, fittings & hangers | P_____ |
| 2.0 | Wires & Cable | _____ |
| 3.0 | Wiring Devices | _____ |
| 4.0 | Panelboards, circuit breakers & safety switches | _____ |
| 5.0 | Meter Center | _____ |
| 6.0 | Telephone House Cable | _____ |
| 7.0 | Miscellaneous | _____ |
| | TOTAL FOR MATERIALS: | P _____ |

II. Labor, supervision, tools & equipment, overhead, profit & tax. P _____

III. Permits & Certificates P _____

LUMP SUM TOTAL FOR BID ITEMS I, II & III: P _____

AMOUNT IN WORDS : _____

_____

**4.0 CONTRACT PERIOD :**

The Contractor shall keep pace with the civil works, and shall complete all works under this proposal within _____ calendar days after signing of contract.

**5.0 ADJUSTMENT IN LABOR COST :**

Bids shall be based on current labor wages. In the event of an official increase in minimum wage or compulsory allowances during the construction period, the contract price shall be adjusted accordingly.

If there shall be such an increase prior to start of work, the total increase in contract price for every One Peso (P 1.00) increase in minimum wage or allowances shall be a fixed amount as indicated below :

"Total Labor Cost Adjustment for (Electrical works) per One Peso (P1.00) increase in minimum wage or allowances." P_____

If there shall be an increase in minimum wage or allowance at anytime during the construction period, the adjustment in labor cost shall be made in proportion to the remaining contract period.

We (or I) make this proposal with full knowledge of the kind, quantity and quality of the

articles and services required and if the proposal is accepted, undersigned agrees to enter into a formal agreement and start the work within Ten (10) calendar days upon receipt of letter of award.

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PROPOSAL FORM : ELECTRICAL WORKS

SUBMITTED BY : _____
_____
_____

DATE : _____

APPROVED BY:
_____
_____

DATE : _____

**END OF SECTION**

**SECTION 00100**

**INSTRUCTION TO BIDDERS ON FIRE PROTECTION WORKS**

**PROJECT : PROPOSED GALERIES TOWER MANILA**
**OWNER : GRAND TAIPAN LAND DEVELOPMENT INC.**
**LOCATION : NATIVIDAD LOPEZ ST. COR. CABRAL ST. MANILA**

These Instructions to Bidders are hereby made part of the proposal and contract documents and Bidders are advised to consider the same in the preparation for their bid.

1.0 TEMPORARY POWER:
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The General Contractor shall provide the temporary power to be used during the construction of the entire building.

The General Contractor shall allow the specialty contractor of other trades directly hired by the Owner to connect to the General Contractor's temporary power connections. The General Contractor in his bid shall consider cost of power consumption.

2.0 The Fire Protection Contractor shall assist General Contractor in securing of fire protection permit and other government fees. All fees by General Contractor.

3.0 Fire Protection Contractor shall be responsible for the safekeeping and storage of owner-supplied items turned-over by the Owner.

The General Contractor in his bid shall consider the cost of providing overall security and storage facilities. However, individual contractor shall remain responsible for the storage and safekeeping of owner-furnished materials turned-over by the Owner until final completion and turn-over of the project.

4.0 Overall the Construction Manager shall do co-ordination. The General Contractor shall not supervise the work of other trades in direct contract with the Owner. However, the General Contractor shall coordinate with contractors of other building trades to keep the work in all aspects under control and proceeding without delay.

5.0 Temporary water facilities shall be provided by the General Contractor and the cost of water consumption for the entire project including use of parties in direct contract with the Owner shall be considered by the General Contractor in his bid.

6.0 In general, all materials to be used shall be of first class quality. the Contractor shall be required within Thirty (30) days after signing of contract to submit samples of materials that they intend to use for approval.

7.0 Bids shall be fixed and shall not be subject to escalation regardless of increase in price of fuel, devaluation

b. All-Risk Insurance:

The Contractor shall secure at its own expense within Twenty (20) calendar days after signing contract a Contractor's All-Risk Insurance from a Surety Company acceptable to the Owner in the amount equivalent to its total contract price.

c. Guarantee Bond:

The Contractor shall upon Owner's acceptance of the work and prior to final payment, obtain at its own expense a Guarantee Bond equivalent to Ten Percent (10%) of the total contract price from a Surety Company acceptable to the Owner to cover a period of One (1) year after completion and acceptance of work.

9.0 MISCELLANEOUS:
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a. A down payment equivalent to Twenty (20%) Percent of the contract amount shall be made to the Contractor upon signing of contract.

**PROJECT : PROPOSED GALERIES TOWER MANILA**
**OWNER :**

TOTAL BID AMOUNT :_____

AMOUNT IN WORDS :_____

**3.0 CONSTRUCTION PERIOD:**
---

Completion and turn-over of contract works shall be within _____ calendar days after signing of contract.

**4.0 LIST OF OWNER-SUPPLIED & EXCLUDED TERMS:**
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4.1 Supply of fire / jockey pumps including controllers and accessories shall be by others. However, installation including the supply of necessary, connecting pipes, valves, flexible connectors and fittings shall be by Fire Protection Contractor.

It is understood that any item required to complete the subject project mentioned in either plans, specifications and other related contract documents but not specifically included in the above list shall be deemed covered by this proposal.

**4.0 ADJUSTMENT IN LABOR COST:**
---

Bids shall be based on current labor wages. In the event of an official increase in minimum wage or compulsory allowances during the construction period. The contract price shall be adjusted accordingly.

If there shall be such an increase prior to start of work, the total increase in the contract price for every One Pesos (P1.00) increase in minimum wage or allowances shall be fixed amount as indicated below :

"Total Labor Adjustment for
Fire Protection Works per One
Pesos (P1.00) increase in minimum
wage or allowance." P _____

If there shall be an increase in minimum wage or allowances at anytime during the construction period, the adjustment in labor cost shall be made in proportion to the remaining contract period.

SUBMITTED BY :
FIRM : _____
BY : _____
TITLE : _____
SIGNATURE : _____
DATE : _____

**END OF SECTION**

PROPOSED GALERIES TOWER MANILA
NATIVIDAD LOPEZ ST. COR. CABRAL ST. MANILA

ASYA DESIGN PARTNER
GRAND TAIPAN LAND DEVELOPMENT INC.



1. Provide survey of Site. Identify all topographical levels and locations of any utilities.
2. Site perimeter fence and gates.
3. Underground power cable, telephone cable.
4. Deep well and temporary waters service.

1.6 WORK SEQUENCE

A. The work will be conducted in phases to provide the least possible interference to the activities of the

1.10 OWNER-FURNISHED ITEMS

A. The Owner will provide the Work includes providing support systems to receive Owner's equipment, and mechanical and electrical connections.

1. The Contractor for General Construction is responsible for designating the delivery dates of Owner furnished items in the Contractor's Construction Schedule, and for receiving unloading and handling Owner-furnished items at the site. The Contractor for General Construction is responsible for protecting Owner-furnished86 0.000018 ()42f(611.99.810596 TzBT/F3 75 Tf0.12 0 0 0.12 235.679993

# SECTION 01330

# SUBMITTALS

## PART 1 - GENERAL

### 1.1 RELATED DOCUMENTS

A. Drawings and general provisions of Contract, including General and Supplementary Conditions and other Division-1 Specification Sections, apply to this Section.

### 1.2 SUMMARY

A. This Section specifies administrative and procedural requirements for submittals required for performance of the Work, including;

1. Contractor's construction schedule.
2. Submittal schedule.
3. Daily construction reports.
4. Shop Drawings.
5. Product Data.
6. Samples.

B. Administrative Submittals: Refer to other Division-1 Sections including Sections "Shop Drawings, Product Data, and Samples" and other Contract Documents for requirements for administrative submittals. Such submittals include, but are not limited to:

1. Permits.
2. Applications for payment.
3.

B. Submittal Preparation: Place a permanent label or title block on each submittal for identification. Indicate the name of the entity that prepared each submittal on the label or title block.

1. Provide a space approximately 100mm x 125mm on the label or beside the title block on Shop Drawings to record the Contractor's review and approval markings and the action taken.
2. Include the following information on the label for processing and recording action taken.

    a. Project name.
    b. Date.
    c. Name and address of Project Manager.
    d. Name and address of Architect.
    e. Name and address of Contractor.
    f. Name and address of subcontractor.
    g. Name and address of supplier.
    h. Name of manufacturer.
    i. Number and ti

D. Area Separations: Provide a separate time bar to identify each major construction area for each major portion of the Work. Indicate where each element in an area must be sequenced or integrated with other activities.

E. Cost Correlation: At the head of the schedule, provide a two item cost correlation line, indicating "pre-calculated" and "actual" costs. On the line show peso-volume of Work performed as of the dates used for preparation of payment requests.

4. Accidents and unusual events.
5. Meetings and significant decisions.
6. Stoppages, delays, shortages, losses.
7. Meter readings and similar recordings.
8. Emergency procedures.
9. Orders and requests of governing authorities.
10. Change Orders received, implemented.
11. Services connected, disconnected.
12. Equipment or system tests and start-ups.
13. Partial Completions, occupancies.
14. Substantial Completions authorized.

**1.7 SHOP DRAWINGS**

A. Submit newly prepared information, drawn to accurate scale. Highlight, encircle, or otherwise indicate deviations from the Contract Documents. Do not reproduce Contract Documents or copy standard information as the basis of Shop Drawings. Standard information prepared without specific reference to the Project is not considered Shop Drawings.

B.

c. Compliance with recognized testing agency standards.
d. Application of testing agency labels and seals.
e. Notation of dimensions verified by field measurement.
f. Notation of coordination requirements.

2. Do not submit Product Data until compliance with requirements of the Contract Documents has been confirmed.

3. Preliminary Submittal: Submit a preliminary single-copy of Product Data where selection of options is required.

4. Submittals: Submit 2 copies of each required submittal; submit 4 copies where required for maintenance manuals. The Architect will retain one, and will return the other marked with action taken and corrections or modifications required.

   a. Unless non-compliance with Contract Document provisions is observed, the submittal may serve as the final submittal.

5. Distribution: Furnish copies of final submittal to installers, subcontractors, suppliers, manufacturers, fabricators, and others required for performance of construction activities. Show distribution on transmittal forms.

   a. Do not proceed with installation until an applicable copy of Product Data applicable is in the installer's possession.

   b. Do not permit use of unmarked copies of Product Data in connection with construction

**1.9 SAMPLES**

A. Submit full-size, fully fabricated Samples cured and finished as specified and physically identical with the material or product proposed. Samples include partial sections of manufactured or fabricated components, cuts or containers of materials, color range sets, and swatches showing color, texture and pattern.

1. Mount, display, or package Samples in the manner specified to facilitate review of qualities indicated. Prepare Samples to match the Architect's Sample. Include the following:

   a. Generic description of the Sample.
   b. Sample source.
   c. Product name or name of manufacturer.
   d. Compliance with recognized standards.
   e. Availability and delivery time.

2. Submit Samples for review of kind, color, pattern, and texture, for a final check of these characteristics with other elements, and for a comparison of these characteristics between the final submittal and the actual component as delivered and installed.

   a. Where variation in color, pattern, texture or other characteristics are inherent in the material or product represented, submit multiple units (not less than 3), that show approximate limits of the variations.

   b. Refer to other Specification Sections for requirements for Samples that illustrate workmanship, fabrication techniques, details of assembly, connections, operation and similar construction characteristics.

   c. Refer to other Sections for Samples to be returned to the Contractor for incorporation in the Work. Such Samples must be undamaged at time of use. On the transmittal, indicate special requests regarding disposition of Sample submittals.

3. Preliminary submittals: Where Samples are for selection of color, pattern, texture or similar characteristics from a range of standard choices, submit a full set of choices for the material or product.

a. Preliminary submittals will be reviewed and returned with the Architect's mark indicating selection and other action.

4. Submittals: Except for Samples illustrating assembly details, workmanship, fabrication techniques, connections, operation and similar characteristics, submit 3 sets; one will be returned marked with the action taken.

5. Maintain sets of Samples, as returned, at the Project site, for quality comparisons throughout the course of construction.

a. Unless non-compliance with Contract Document provisions is observed, the submittal may serve as the final submittal.

b. Sample sets may be used to obtain final acceptance of the construction associated with each set.

B. Distribution of Samples: Prepare and distribute additional sets to subcontractors, manufacturers, fabricators, suppliers, installers, and others as required for performance of the Work. Show distribution on transmittal
forms.

1. Field Samples specified in individual Sections are special types of Samples. Field Samples are full-size examples erected on site to illustrate finishes, coatings, or finish materials and to establish the standard by which the Work will be judged.

a. Comply with submittal requirements to the fullest extent possible. Process transmittal forms to provide a record of activity.

**1.10 ARCHITECT'S ACTION**

A. Except for submittals for record, information or similar purposes, where action and return is required or requested, the Architect will review each submittal, mark to indicate action taken, and return accordingly.

1. Compliance with specified characteristics is the Contractor's responsibility.

2. In instances where the Project Manager or Construction Manager are identified as the Owner's

4. Other Action: Where a submittal is primarily for information or record purposes, special processing or other activity, the submittal will be returned, marked "Action Not Required".

**PART 2 - PRODUCTS (Not Applicable).**

**PART 3 - EXECUTION (Not Applicable).**

**END OF SECTION**

# SECTION 01335

# SHOP DRAWINGS, PRODUCT DATA AND SAMPLES

## PART 1 - GENERAL

### 1.1 RELATED DOCUMENTS

A. Drawings and general provisions of Contract, including General and Supplementary Conditions and other Division-1 Specification Sections, apply to this Section.

### 1.2 SUMMARY

A. This Section specifies administrative and procedural requirements for submittal of Shop Drawings, Product Data and Samples to verify that products, materials and systems proposed for use comply with provisions of the Contract Documents.

B. Shop Drawings include, but are not limited to, the following:

1. Fabrication Drawings.
2. Installation Drawings.
3. Setting diagrams.
4. Shopwork manufacturing instructions.
5. Templates and patterns.
6. Schedules.
7. Design mix formulas.

    a. Standard information prepared without specific reference to the Project is not considered to be Shop Drawings.

8. Coordination Drawings are a special type of Shop Drawing that show the relationship and integration of different construction elements that require close and careful coordination during fabrication or during installation to fit in the restricted space provided or to function as intended.

    a. Preparation of Coordination Drawings is specified in the "Project Coordination" Section and may include components previously shown in detail on Shop Drawings or Product Data.

C. Product Data include, but are not limited to, the following:

1. Manufacturer's product Specifications.
2. Manufacturer's installation instructions.
3. Standard color charts.
4. Catalog cuts.
5. Roughing-in diagrams and templates.
6. Standard wiring diagrams.
7. Printed performance curves.
8. Operational range diagrams.
9. Mill reports.
10. Standard product operating and maintenance manuals.

D. Samples include, but are not limited to, the following:

1. Partial Sections of manufactured or fabricated components.
2. Small cuts or containers of materials.
3. Complete units of repetitively-used materials.
4. Swatches showing color, texture and pattern.
5. Color range sets.

6. Components used for independent inspection and testing.
7. Field Samples are full-size physical examples erected on site to illustrate finishes, coatings, or finish materials and to establish the standard by which the Work will be judged.
8. Mock-ups are full size assemblies for review of construction, coordination, testing, or operation; they are not Samples.

E. Administrative Submittals: Refer to other Division-1 Sections and other Contract Documents for requirements for administrative submittals. Such submittals include, but are not limited to:

1. Permits.
2. Applications for payment.
3. Performance and payment bonds.
4. Insurance certificates.
5. Listing of subcontractors.

F. Project Photographs: Submittal of Project photographs is included under Section "Construction Photographs."

G. Inspection and Test Reports: Submittal of inspection and test reports is included under Section "Quality Control Services."

H. Mock-ups: Erection of mock-ups is included under Section "Quality Control Services." and "Mock-ups and Tests".

## 1.3 SUBMITTAL PROCEDURES

A. Coordination: Coordinate preparation and processing of submittals with performance of the Work. Transmit each submittal to the Architect sufficiently in advance of scheduled performance of related construction activities to avoid delay.

1. Coordinate each submittal with other submittals and related activities that require sequential activity including:

a. Testing.
b. Purchasing.
c. Fabrication.
d. Delivery.

2. Coordinate transmittal of different types of submittals for the same element of the Work and different elements of related parts of the Work so that processing will not be delayed by the Architect's need to review submittals concurrently for coordination.

a. The Architect reserves the right to withhold action on a submittal requiring coordination with other submittals until related submittals are forthcoming.

3. Scheduling: The Submittal Schedule listing submittals and indicating time requirements for coordination of submittal activity with related construction operations is included under Section "Schedules and Reports."

4. Processing: Allow sufficient review time so that installation will not be delayed as a result of the time required to process submittals, including time for resubmittals.

a. Allow two weeks for the Architect's initial review of each submittal.

d. Advise the Architect when processing time is critical to progress, and the Work would be expedited if processing time could be shortened.

. e

1. Include the following information on Shop Drawings:

   a. Dimensions.
   b. Identification of products and materials included.
   c. Compliance with specified standards.
   d. Notation of coordination requirements.

   e. Notation of dimensions established by field measurement.

2. Submit Coordination Drawings where required for integration of different construction elements. Show construction sequences and relationships of separate components where necessary to avoid conflicts in utilization of the space available.

3. Highlight, encircle or otherwise indicate deviations from the Contract Documents on the Shop Drawings.

4. Do not permit Shop Drawing copies without an appropriate final stamp or other marking indicating the action taken by the Architect to be used in connection with construction.

5. Sheet Size: Except for templates, patterns and similar full-size Drawings, submit Shop Drawings on sheets at least A4 but no larger than A1 size. Sheet sizes are required to be the same for individual submittals. Indifferent sheet sizes in one package will be returned without action. Pre-submission meeting to be concluded with Architect to agree on principles.

6.

6. Submittals: Submit 2 copies of each required Product Data submittal; submit 2 additional copies where copies are required for maintenance manuals. The Architect will retain one copy, and will return the other marked with the action taken and corrections or modifications required.

a. Maintain sets of Samples, as returned by the Architect, at the Project site, available for quality control comparisons throughout the course of construction activity.

b. Unless the Architect observes non-compliance with provisions of the Contract Documents, the submittal may serve as the final submittal.

c.

1. Labels: Locate required labels and stamps on concealed surfaces; where required for observation after installation, locate on accessible surface which is not conspicuous in occupied spaces.

2. Equipment Nameplates: Provide permanent nameplate on each service-connected or power operated equipment.

    a. Indicate manufactu

B. Perform work in accordance with details of manufacturers instructions and recommendations, and in accordance with specified requirements.

1. Should a conflict exist between specifications and recommendations or instructions consult with Architect.

**1.6 TRANSPORTATION AND HANDLING**

A. Transport products by methods to avoid product damage, deliver in undamaged condition in manufacturer's unopened containers or packaging.

1. Comply with manufacturer's recommendations for transportation and handling.

B. Provide equipment and personnel to handle products by methods to prevent soiling or damage.

C. Promptly inspect shipments to assure products comply with requirements, quantities are correct, and products are undamaged.

1. Reject damaged and defective items.

D. Control delivery schedule to minimize long-term storage at site, particularly for products recognized to be flammable, hazardous, easily damaged, or sensitive to deterioration, theft, loss, or damage.

**1.7 STORAGE AND PROTECTION**

A. Store products in accordance with manufacturer's instructions, with seals and labels intact and legible.

B. Store sensitive products in weather-tight enclosures; maintain within temperature and humidity ranges required by manufacturer's instructions.

C.

# SECTION 01630

# SUBSTITUTIONS

## PART 1 - GENERAL

### 1.1 REQUIREMENTS INCLUDED

A. Contract Amount: Base on construction methods, manufacturers and products name in Contract Documents, including addenda.

1. Advise Architect where construction method is not feasible or named product may not be available for the Project prior to signing Contract.

B. Substitutions: Procedures are described for requesting substitution of unlisted manufacturers or products in lieu of those named in Specifications or approved for use in addenda.

1. Construction Methods: Request may also be made for substitution of methods of construction indicated on Drawings.

### 1.2 PRODUCTS LIST

A. List: Submit to Architect a list of major products, which are proposed for installation, with name of manufacturer, product trade name, and model.

1. Tabulate products by specification number and title.

### 1.3 CONTRACTOR'S LIST

A. Reference Standards and Performance Requirements: For products specified only by reference standard or performance requirements, select product meeting referenced standard or performance requirements.

B. Proprietary Specifications:

1. For products specified by naming one or more manufacturers or products, select products of any named manufacturer meeting specifications. Product shall be at least same level of quality of listed product.

2. For product or manufacturer which is not specifically named submit request for substitution.

3. Where terms "or equal", "or approved equal", or similar references are made, submit request for substitution for manufacturer or product not specifically named in Specifications.

C. Construction Methods: Comply with Drawings for configurations, locations, and relationships of materials, submit request for substitution for different construction methods.

### 1.4 REQUESTS FOR SUBSTITUTIONS

A. Submit four copies of each request for substitution indicating compliance of substitution with Contract Documents. Use only standard form for SUBSTITUTION REQUEST provided at the end of this section.

1. Substitutions will be considered when:

a. Changes are consistent with intent of Contract Documents.

b. Requests are fully documented and properly submitted.

c. Substantial advantage is offered to Owner, in terms of cost, time, energy conservation, or similar valuable considerations, after deducting offsetting disadvantages.

[redacted]

**1.5 CONTRACTOR'S REPRESENTATION**

A. Requests for "or equal" substitutions constitute a representation that Contractor:

1.

**SECTION 02230**

**SITE CLEARING**

## PART 1 - GENERAL

### 1.1 SUMMARY

This Section includes the following :

A. Protection of existing trees indicated to remain.
B. Removal of trees and other vegetation.
C. Topsoil stripping.
D. Clearing and grubbing.

### 1.2 PROJECT CONDITIONS

A. Traffic : Conduct site-clearing operations to ensure minimum interference with roads, streets, walks, and other adjacent occupied or used facilities. Do not close or obstruct streets, walks, or other occupied or used facilities without permission form authorities having jurisdiction.
B. Protection of Existing Improvements : Provide protections necessary to prevent damage to existing improvements indicated to remain in place.

1. Protect improvements on adjoining properties and on Owner's property.

2. Restore damaged improvements to their original condition, as acceptable to property owners.

C. Protection of Existing Trees and Vegetation : Protect existing trees and other vegetation indicated to remain in place against unnecessary cutting, breaking or skinning of roots, skinning or bruising of bark, smothering of trees by stockpiling construction materials or excavated materials within drip line, excess foot or vehicular traffic, or parking of vehicles within drip line. Provide temporary guards to protect trees and vegetation to be left standing.
D. Historic or items of cultural value discovered during site clearing remain the property of the Owner. Take all necessary precautions to protect such items. Mark location found by coordinates and invert level. Notify Owner at once to establish extraction procedures jointly.

### 1.3 EXISTING SERVICES

A. General : Indicated locations are approximate; determine exact locations before

commencing Work.

1. Arrange and pay for disconnecting, removing, capping, and plugging utility services. Notify affected utility companies in advance and obtain approval before starting this Work.

2. Place markers to indicate location of disconnected services. Identify service lines and capping locations on Project Record Documents.

## PART 2 - PRODUCTS (Not Applicable)

## PART 3 - EXECUTION

### 3.1 SITE CLEARING

A. General : Remove trees, shrubs, grass and other vegetation, improvements, or obstructions, as required, to permit installation of new construction. Remove similar items elsewhere on site or premises as specifically indicated. Removal includes digging out and off-site disposal of stumps and roots.

1. Cut minor roots and branches of trees indicated to remain in a clean and careful manner where such roots and branches obstruct installation of new construction.

B. Topsoil : Topsoil is defined as friable clay loam surface soil found in a depth of not less than 100 mm. Satisfactory topsoil is reasonably free of subsoil, clay lumps, stones, and other objects over 50 mm diameter, and without weeds, roots, and other objectionable material.

1. Strip topsoil to whatever depths encountered in a manner to prevent intermingling with underlying subsoil or other objectionable material. Remove heavy growths of grass from areas before stripping.

    a. Where existing trees are indicated to remain, leave existing topsoil in place within drip lines to prevent damage to root system.

2. Stockpile topsoil in storage piles in areas indicated or directed. Construct storage piles to provide free drainage of surface water. Cover storage piles, if required, to prevent wind erosion.

C. Clearing and Grubbing : Clear site of trees, shrubs, and other vegetation, except for those indicated to be left standing.

1. Completely remove stumps, roots, and other debris protruding through ground surface.

2. Use only hand methods for grubbing inside drip line of trees indicated to remain.

3. Fill depressions caused by clearing and grubbing operations with satisfactory soil material, unless further excavation or earthwork is indicated.

    a. Place fill material in horizontal layers not exceeding 150 mm loose depth, and thoroughly compact each layer to a density equal to adjacent original ground.

D. Removal of Improvements : Remove existing above-grade and below-grade improvements as indicated and as necessary to facilitate new construction.

1. Abandonment or removal of certain underground pipe or conduits may be indicated on mechanical or electrical drawings and is included under work of related MEP Consultant specifications. Removing abandoned underground piping or conduit interfering with construction is included under this Section.

## 3.2 DISPOSAL OF WASTE MATERIALS

A. Burning on Owner's Property : Burning is not permitted on Owner's property.

B. Removal from Owner's Property : Remove waste materials and unsuitable or excess topsoil from Owner's property

**END OF SECTION**

# SECTION 02060

# BUILDING DEMOLITION

## PART 1 - GENERAL

### 1.1 SUMMARY

A. This Section requires removal and disposal, off site, of the following:
   1. Fence structures and adjacent site improvements to limits indicated on drawings.
   2. Building foundations and supporting walls.

### 1.2 SUBMITTALS

A.

1. Erect temporary covered passageways as required by authorities having jurisdiction.
2. Provide interior and exterior shoring, bracing, or support to prevent movement, settlement, or collapse of structures to be demolished and adjacent facilities to remain.

H. Damages: Promptly repair damages caused to adjacent facilities by demolition operations.

I. Utility Services: Maintain existing utilities indicated to stay in service and protect against damage during demolition operations.
1. Do not interrupt existing utilities serving occupied or used facilities, except when authorised in writing by authorities having jurisdiction. Provide temporary services during interruptions to existing utilities, as acceptable to governing authorities.
2. Owner will arrange for disconnecting and sealing utilities serving structures to be demolished, prior to start of demolition work, upon written request of Contractor.
3. Owner will shut off utilities serving structures. Disconnecting and sealing indicated utilities before starting demolition operations is part of this work.

J. Utility Services: Refer to Division 15 and 16 sections for disconnecting, removing, and capping of utility services. Do not start demolition work until utility disconnection have been completed and verified in writing.

**PART 2 - PRODUCTS (Not Applicable)**

**PART 3 - EXECUTION**

**3.1 DEMOLITION**

A. Pollution Controls: Use water sprinkling, temporary enclosures, and other suitable methods to limit dust and dirt rising and scattering in air. Comply with governing regulations pertaining to environmental protection.

1. Do not use water when it may create hazardous or objectionable conditions such as ice, flooding, and pollution.

B. Clean adjacent structures and improvements of dust, dirt, and debris caused by demolition operations. Return adjacent areas to condition existing prior to start of work.

C. Building Demolition: Demolish buildings completely and remove from site. Use such methods as required to complete work within limitations of governing regulations.

1. Small structures may be removed intact when acceptable to Architect and approved by authorities having jurisdiction.

2. Proceed with demolition in systematic manner, from top of structure to ground. Complete demolition work above each floor or tier before disturbing supporting members on lower levels.
3. Demolish concrete and masonry in small sections.
4. Remove structural framing members and lower to ground by hoists, derricks, or other suitable methods.
5. Break up and remove concrete slabs-on-grade, unless otherwise shown to remain.
6. Locate demolition equipment throughout structure and remove materials so as to not impose excessive loads to supporting walls, floors, or framing.

D. Below-Grade Construction: Demolish foundation walls and other below-grade construction, including concrete slabs, to a depth of not less than 12 inched below lowest foundation level.

E. Filling Basements and Voids: Completely fill below-grade areas and voids resulting from demolition of structures.

1. Use satisfactory soil materials as defined in ASTM D 2487, consisting of stone, gravel, and sand, free from debris, trash, frozen materials, roots, and other organic matter.
2. Prior to placement of fill materials, ensure that areas to be filled are free of standing water, frost, frozen material, trash, and debris.
3. Place fill materials in horizontal layers not exceeding 6 inches in loose depth. Compact each layer at optimum moisture content of fill material to a density equal to original adjacent ground, but not less than 90 percent density when tested in accordance

PROPOSED GALERIES TOWER MANILA
NATIVIDAD LOPEZ ST. COR. CABRAL ST. MANILA

ASYA DESIGN PARTNER
GRAND TAIPAN LAND DEVELOPMENT INC.



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density equal to the adjacent area. Approved portable tampers shall be used for compacting fill material in trenches and fill adjacent to walls.

**1.5 PLACING AND COMPACTING FILL:**

A. Materials

1. Common fill shall be approved materials free from roots and stumps. Earthfill shall be used if site excavated material is rejected or insufficient.
2. Selected Fill: Materials shall be placed where specified and indicated on the plan and shall consist of gravel, crushed gravel, crushed rock, crushed adobe, or combination thereof. The material shall be free from rocks larger than 100 mm in size, fine clays, vegetable matter or other undesirable matters and shall be thoroughly compacted after placing, as hereinafter specified.

B. Placing Fill: Before placing fill materials, the surface upon which it will be placed shall be cleared of all brushes, roots, vegetable matters and debris, scarified and thoroughly wetted to insure good bonding between the ground and the fill materials. Fill in contact with new concrete work shall not be placed until at least 48 hours after removal of forms.

C. Compaction: Fills shall be evenly spread in horizontal layers of not more than 200 mm in thickness. Each layer shall be wetted and compacted by approved mechanical compaction machine, roller or portable, to a density of at least 90 percent of its maximum density for cohesive soils and 95 percent of its maximum density for non-cohesive soils as determined by ASTM Method D-1557 or AASHTO Method T-180.

**1.6 FINISH GRADING:**

The Contractor shall fill and grade the whole are around the building to the indicated subgrade elevations as directed by the Architect or Engineer. The Contractor shall verify the finish grade elevations of the proposed pavements around the building. Prior to grading operations, the area shall be cleared of all heavy growth of vegetation stumps, roots, cables, wires, rocks and other debris. The finished sub-grade shall be reasonably smooth and compacted and ready to receive the base course for the proposed pavements.

**1.7 DISPOSAL OF EXCESS MATERIALS:**

Any excess materials resulting from the finish grading operations, not required or unsuitable for fill or backfill, shall be disposed of by the Contractor away from the project site, at his expense.

**END OF SECTION**

**SECTION 02360**

**CHEMICAL SOIL TREATMENT**

Delivery and Storage: Termiticides shall be delivered to project site in sealed and labeled containers as supplied by manufacturer or formulator. The label shall be complete with application instructions and bear the Fertilizer and Pesticide Authority's registration number. Temporary storage of insecticides utilized at the project site shall be allowed subject to the following: site safety requirements.

102.2 PRODUCTS/SERVICES

1. General

The general provision of the contract, general conditions and special conditions apply to all works specified herein.

2. Scope of Work Description

Supply of materials, labor, supervision, tools, equipment and such other items necessary in the effective implementation of on-construction termite control work activities.

a. Installation of Anti-Termite Reticulation System
b. Soil treatment work.

3. Materials

A. Anti-termite reticulation system
1. designed Reticulation pipes and related components.
2. Filter point covers.

B. Soil Treatment chemicals- Only FPA-approved chemicals will be used. Provide non-repellant chemical solution consisting only of one of the following.

1. Premise SC 200 (Imidacloprid)

2. Agenda 2.5 EC (Fipronil )

102.3 EXECUTION

1. Installation of Anti-termite Reticulation System

1.1 Use the approved lay-out plan and installation program. Any deviation there from must have prior approval of the Architects.
1.2 Conduct sample operation ability test on reticulated pipe segments before they are finally covered. The Construction Manager must certify the operation ability of the system installed before they are finally covered. The construction manager must certify that the test has been successfully undertaken.
1.3 Upon completion, submit an as-built pan and operating instructions of the system.
1.4 Ensure that all filler point covers a re properly installed & that they conform with the designers specifications.

2. Soil Treatment Work

2.1 Initial soil treatment

a. At the time 4[illegible]011 Tm[Enna[illegible]e540.5[illegible] Tm[(c)5(o)-4(n)-4(s)-7(t)-2(r)12(u)-4(c)5(t)-2(i)-4(o)-4(n)-4(

2.2 Post-construction treatment

As soon as the buildings is substantially completed prior to final turn-over:

1. Toxicant solution is applied to establish termite killing zones, thru the installed anti-termite reticulation system, the chemical as herein specified.

2.3 Provide certification that the soil treatment work as undertaken as specified.

**END OF SECTION**

**SECTION 02760**

**PAVEMENT & ROADWAY MARKING**

## PART 3 - EXECUTION

### 3.1 INSPECTION

A. Verify that conditions are satisfactory for the installation of pavement and roadway marking. If unsatisfactory conditions exist, do not commence installation until such conditions have been corrected.

### 3.2 PREPARATION

A. Substrates shall be clean and dry, and free from dust, dirt and foreign matter.

B. Provide measured layouts, temporary markings, templates, and other means necessary to provide painting.

### 3.3 PAVEMENT AND ROADWAY MARKING

A.

# SECTION 03330

# CAST-IN-PLACE CONCRETE

## PART 1 - GENERAL

### 1.1 SUMMARY

A. This Section specifies cast-in place concrete, including formworks, placement procedures, and finishes, which are primarily the concern of exposed Architectural Finishes.

B. The

**1.3 QUALITY ASSURANCE**

A. Codes and Standards: Comply with provisions of following codes, specifications, and standards, except where more stringent requirements are shown or specified:

1. ACI 318, "Building Code Requirements for Reinforced Concrete."
2. Concrete Reinforcing Steel Institute (CRSI), "Manual of Standard Practice."

**PART 2 - PRODUCTS**

**2.1 FORM MATERIALS**

A. Forms for Exposed Finish Concrete: Plywood, metal, metal-framed plywood faced, or other acceptable panel-type materials, to provide continuous, straight, smooth, exposed surfaces as specified. Furnish in largest practicable sizes to minimize number of joints and to conform to joint system shown on drawings.

B. Forms for Unexposed Finish Concrete: Plywood, lumber, metal, or other acceptable material. Provide lumber dressed on at least 2 edges and one side for tight fit.

C. Forms for Textured Finish Concrete: Units of face design, size, arrangement, and configuration to match Architect's control sample. Provide solid backing and form supports to ensure stability of textured form liners.

D. Forms for Cylindrical Columns and Supports: Metal, fiberglass-reinforced plastic, or paper or fiber tubes. Provide paper or fiber tubes of laminated plies with water-resistant adhesive and wax-impregnated exterior for weather and moisture protection. Provide units with sufficient wall thickness to resist wet concrete loads without deformation.

E. Form Coatings: Provide commercial formulation form-coating compounds with a maximum VOC of 350 mg/l that will not bond with, stain, or adversely affect concrete surfaces and will not impair subsequent treatments of concrete surfaces.

F. Form Ties: Factory-fabricated, adjustable-length, removable or snap-off metal form ties, designed to prevent form deflection and to prevent spalling concrete upon removal. Provide units that will leave no metal closer than 38 mm to exposed surface.

1. Provide ties that, when removed, will leave holes not larger than 25-mm diameter in concrete surface.

**2.2. REINFORCING MATERIALS**

A. Refer to Structural Engineers Specifications.

**2.3. CONCRETE MATERIALS**

A. Unless otherwise specified all materials required to obtain concrete finishes as specified by Architect are included in the Structural Engineers Specifications.

**PART 3 - EXECUTION**

**3.1 GENERAL**

A. Coordinate the installation of joint materials and vapor retarders with placement of forms and reinforcing steel.

**3.2 FORMS**

A. General: Design, erect, support, brace, and maintain form work to support vertical and lateral, static and dynamic loads that might be applied until concrete structure can support such loads. Construct formworks so concrete members and structures are of correct size, shape, alignment, elevation, and position. Maintain formwork construction tolerances complying with ACI 3

**3.6 INSTALLATION OF EMBEDDED ITEMS**

A. General: Set and build into work anchorage devices and other embedded items required for other work that is attached to or supported by cast-in-place concrete. Use setting drawings, diagrams, instructions, and directions provided by suppliers of items to be attached thereto.

B. Install reglets to receive top edge of foundation sheet waterproofing and to receive thru-wall flashings in outer face of concrete frame at exterior walls, where flashing is

shown at lintels, relieving angles, and other conditions.

C. Forms for Slabs: Set edge forms, bulkheads, and intermediate screed strips for slabs to obtain required elevations and contours in finished surfaces. Provide and secure units to support screed strips using strike-off templates or compacting-

rapidly penetrate placed layer and at least 150mm into preceding layer. Do not insert vibrators into lower layers of
concrete that have begun to set. At each insertion limit duration of vibration to time necessary to consolidate concrete and complete embedding of reinforcement and other embedded items without causing segregation of mix.

F. Placing Concrete Slabs: Deposit and consolidate concrete slabs in a continuous operation, within limits of construction joints, until the placing of a panel or section is completed.

1. Consolidate concrete during placing operations so that concrete is thoroughly worked around reinforcement and other embedded items and into corners.

2. Bring slab surfaces to correct level with straightedge and strike off. Use bull floats or darbies to smooth surface, free of humps or hollows. Do not disturb slab surfaces prior to beginning finishing operations.

3. Maintain reinforcing in proper position during concrete placement.

H. Hot-Weather Placing: When hot weather conditions exist that would seriously impair quality and strength of concrete, place concrete in compliance with ACI 305 and as herein specified.

1. Cover reinforcing steel with water-soaked burlap if it becomes too hot, so that steel temperature will not exceed the ambient air temperature immediately before embodiment in concrete.

2. Fog spray forms, reinforcing steel, and sub grade just before concrete is placed.

3. Use water-reducing retarding admixture when required by high temperatures, low humidity, or other adverse placing conditions, when acceptable to Architect.

**3.9 CONCRETE CURING AND PROTECTION**

A. General: Co-ordinate with Structural Engineer. Protect freshly placed concrete from premature drying and excessive cold or hot temperatures. In hot, dry, and windy weather, protect concrete from rapid moisture loss before and during finishing operations with an evaporation-control material. Apply in accordance with manufacturer's instructions after screening and bull floating, but before power floating and troweling.

B. Start initial curing as soon as free water has disappeared from concrete surface after placing and finishing. Weather permitting, keep continuously moist for not less than 7 days.

C. Curing Methods: Perform curing of concrete by curing and sealing compound, by moist curing, by moisture-retaining cover curing, and by combinations thereof, as herein specified.

D. Provide moisture curing by following methods.

1. Keep concrete surface continuously wet by covering with water.

2. Use continuous water-fog spray.

3. Cover concrete surface with specified absorptive cover, thoroughly saturate cover with water, and keep continuously wet. Place absorptive cover to provide coverage of concrete surfaces and edges, with 100mm lap over adjacent absorptive covers.

E. Provide moisture-cover curing as follows:

1. Cover concrete surfaces with moisture-retaining cover for curing concrete, placed in widest practicable width with sides and ends lapped at least 75mm and sealed by waterproof tape or adhesive. Immediately repair any holes or tears during curing period using cover material and waterproof tape.

[redacted]

concrete as herein specified, to blend with in-place construction. Provide other miscellaneous concrete filling shown or required to complete work.

B.

patching concrete of same materials to provide concrete of same type or class as original concrete. Place, compact, and finish to blend with adjacent finished concrete. Cure in same manner as adjacent concrete.

D. Repair isolated random cracks and single holes not over 1 inch in diameter by dry-pack method. Groove top of cracks and cut out holes to sound concrete and clean of dust, dirt, and loose particles. Dampen cleaned concrete surfaces and apply bonding compound. Mix dry-pack, consisting of one part portland cement to 2-1/2 parts fine aggregate passing a No. 16 mesh sieve, using only enough water as required for handling and placing. Place dry-pack before bonding compound has dried. Compact dry-pack mixture in place and finish to match adjacent concrete. Keep patched area continuously moist for not less than 72 hours.

E. Perform structural repairs with prior approval of Architect for method and procedure, using specified epoxy adhesive and mortar.

F. Repair methods not specified above may be used, subject to acceptance of Architect.

**3.17**

# SECTION 03450

# ARCHITECTURAL PRECAST CONCRETE - PLANT CAST

## PART 1 - GENERAL

### 1.1 SUMMARY

A. This Section includes architectural pre-cast concrete units. Architectural pre-cast concrete includes the following :

1. Plain smooth-faced concrete units with finish on external surface.(verify schedule of finish)

B. Provide unit rates for each of the following optional types of architectural pre-cast concrete for final selection and location by architect.

1. Special formed and textured units.

C. Related Sections ; The following sections contain requirements that relate to this section :

1. Cast-in-place concrete (architectural reference section) is specified in another Division 3 Section.

2. Pre-cast pre-stressed structural concrete units are specified in another Division 3 section.

3. Caulking, sealants, and gaskets are specified in Division 7.

4. Windows, glazing and other exterior wall related sections are specified in Division 8.

5. Elastomeric paint is specified in Division 9.

### 1.2 SUBMITTALS

A. Product data and instructions for manufactured materials and products. Include mix designs, certifications, and laboratory test reports as required.

1. Include water absorption test reports for units with exterior exposure.

B. Shop drawings prepared by or under supervision of a qualified professional engineer showing complete information for fabrication and installation of pre-cast concrete units. Indicate member dimensions and cross-section; fabrication tolerances; location, size, and type of reinforcement, Including special reinforcement; and lifting devices necessary for handling and erection.

1. Include erection procedure for pre-cast units, sequence of erection, and erection tolerances.

2. Show layout, dimensions, and identification of each pre-cast unit corresponding to sequence and procedure of installation.

3. Indicate welded connections by AWS standard symbols. Detail inserts, connections, and joints, including accessories and construction at openings in pre-cast units.

4. Show caulked joints, including expansion joints ("soft" type) and grouted joints

prior to start of installation work and after Architect review of finish samples. Acceptable full-size mock-ups may be incorporated in job installation.

D. Fabricator Qualifications : Firm having a minimum of 5 years successful experience in fabrication of architectural pre-cast concrete units, similar to members required for this project, will be acceptable. Fabricator must have sufficient production capacity to produce, transport, and deliver required units without causing delay in the work.

E. Design modifications may be made only as necessary to meet field conditions and to ensure proper fitting of the work and only as acceptable to Architect. Maintain general design concept shown without increasing or decreasing sizes of members or altering profiles and alignment shown. Provide complete design calculations and drawings prepared by a licensed professional engineer, if design modifications are anticipated.

F. Erector Qualifications : Minimum of 3 years successful experience in erection of architectural pre-cast concrete units similar to units required for this project.

### 1.4 DELIVERY, STORAGE, AND HANDLING

A. Deliver pre-cast concrete units to project site in such quantities and at such times to assure continuity of installation. Store units at project site to prevent cracking, distorting, warping, staining, or other physical damage and so those markings are visible. Lift and support units only at designated lifting or supporting points as shown on final shop drawings.

## PART 2 - PRODUCTS

### 2.1 THICKNESS: 125mm

### 2.2 AVAILABLE MANUFACTURERS:

Subject to compliance with requirements offering products which may be incorporated in the work included, but are not limited to:

1. Rockbuilt

### 2.3 FORMWORK

A. Provide forms and , where required, form-facing materials of metal, plastic, wood, or other acceptable material that is non-reactive with concrete and will produce

B. Unless forms for plant-manufactured pre-stressed concrete units are stripped prior to de-tensioning, design forms so that stresses are not induced in pre-cast units due to deformation of concrete under pre-stress or to movement during de-tensioning.

## 2.4 REINFORCING MATERIALS

A. Reinforcing Bars : ASTM A 615, Grade 60, deformed.

B. Epoxy

E. Air-Entraining Admixtures : ASTM C 260.

F. Water-Reducing, Retarding, or Accelerating Admixtures : ASTM C 494, type as selected by Fabricator and containing not more than 0.1 percent chloride ions.

## 2.6 CONNECTION MATERIALS

A. Steel Plates : Structural quality, hot-rolled carbon steel, ASTM A 283, Grade C.

B. Steel Shapes : ASTM A 36.

C. Stainless Steel Shapes : AISI Type 302/304.

D. Anchor Bolts : ASTM A 307, low-carbon steel bolts, regular hexagon nuts and carbon steel washers.

E. Electrodes for Welding : Comply with AWS Code.

F. Finish of Steel Units : Exposed units, hot-dip galvanized after fabrication, ASTM A 153,; inserts cast into pre-

1. Compressive Strength : 34.45 KPa minimum at 28 days.

2. Total Air Content : Not less than 4 percent nor more than 6 percent.

3. Water Absorption : Not to exceed 5 to 6 percent by weight, except between 3 to 4 percent for sloping surfaces (sills).

E. Backup Concrete : Light weight concrete with 34.45 KPa compressive strength at 28 days, and air-dry density not less than 1,440 nor more than 1,840 kg/cubic metre.

F. Submit written reports to Architect of proposed mix for each type of concrete at least 15 days prior to start of pre-cast unit production. Do not begin concrete production until Engineer has reviewed mixes and evaluations.

G. Adjustment to Concrete Mixes : Mix design adjustments may be requested when characteristics of materials, job conditions, weather, test results, or other circumstances warrant. Laboratory test data for revised mix designs and strength results must be submitted to and accepted by Architect before using in the work.

H. Admixtures : Use air-entraining admixture in strict compliance with manufacturer's directions. Admixtures to increase cement dispersion or provide increased workability for low-slump concrete may be used subject to Architect's acceptance.

1. Use amounts as recommended by admixture manufacturer for climatic conditions prevailing at time of placing . Adjust quantities of admixtures as required to maintain quality control.

## 2.8 FABRICATION

A. General : Fabricate pre-cast concrete units complying with manufacturing and testing procedures, quality control recommendations, and following dimensions tolerances, unless otherwise indicated.

B. Forms : Accurately construct forms mortar-tight and of sufficient strength to withstand pressures due to concrete placing operations, temperature changes, and , when pre-stressed, pre-tensioning and de-tensioning operations. Maintain form work to provide completed pre-cast concrete units of shapes, lines, and dimensions indicated, within specified fabrication tolerances.

C. Dimensional Tolerances of Finished Units : Overall height and width measured at face adjacent to mold at time of casting :

1. 3.0 metres or less : Plus or minus 3.0 mm.

2. 3.0 metres to 6.0 metres : Plus 3.0 mm, minus 4.68 mm.

3. 6.0 metres to 9.0 metres : Plus 3.0 mm, minus 6.0 mm.

4. Each additional 10 feet : Plus or minus 1.5 mm per 3.0 metres.

5. Angular deviation of plane of side mold : 0.75 mm per 75 mm depth or 1.5 mm total, whichever is greater.

6. Openings within one unit : Plus or minus 6.0 mm, except plus or minus 3.0 mm for windows and door frames.

7. Out of square (difference in length of two diagonal measurements) : 3.0 mm per 1.8 metres or 6.0 mm total, whichever is greater.

8. Thickness : Minus 3.0 mm, plus 6.0 mm.

9. Tolerances of other dim

2. Install windows, and louvres framed and glazed, prior to delivery to site as required.

H. Anchorages : Provide loose steel plates, clip angles, seat angles, anchors, dowels, cramps, hangers, and other miscellaneous steel shapes not provided by other trades, necessary for securing precast units to supporting and adjacent members.

I. Surface Finish : Fabricate pre-cast units and provide exposed surface finishes as follows :

1. Smooth surface finish free of pockets, and sand streaks, and honeycomb, with uniform color and texture to match Architect's control sample ready to receive elastomeric paint finish application.

2. As-cast or float finish for unexposed surfaces.

J. Optional Surface Finishes: Fabricate pre-cast units and provide unit rates for exposed surface finish options as follows;

1. Abrasive blast finish, using abrasive grit, equipment, application techniques, and cleaning procedures to expose aggregate and surrounding matrix surfaces, to match Architect's control sample.

2. Textured surface finish imparted by form liners or inserts to provide surfaces free of pockets, streaks, and honeycomb, with uniform color and texture to match Architect's control sample.

## PART 3 - EXECUTION

### 3.1 INSTALLATION

A. General : Deliver anchorage items to be embedded in other construction before start of such work. Provide setting diagrams, templates, instructions, and directions as required for installation.

B. Do not install pre-cast units until supporting concrete has attained minimum allowable design compressive strength.

C. Install pre-cast concrete members plumb, level, and in alignment within PCI MNL-117 and specified limits of erection tolerances. Provide temporary supports and bracing as required maintaining position, stability, and alignment as members are being permanently connected.

1. Maintain horizontal and vertical joint alignment and uniform joint with as erection progresses.

D. Accessories : Install clips, hangers, and other accessories required for erection of precast units to supporting members and backup materials.

E. Anchor units in final position by bolting, welding, grouting, or as otherwise indicated. Remove temporary shims, wedges, and spacers as soon as possible after anchoring and grouting are completed.

1. At bolted connections use lock washers or other acceptable means to prevent loosening of nuts.

2. At welded connections apply rust-inhibitive coating on damaged areas, same as shop-applied material. Use galvanizing repair coating on galvanized surfaces.

F. Cleaning : Clean exposed facings to remove dirt and stains on units after erection and completion of joint treatments. Wash and rinse in accordance with pre-cast manufacturer's recommendations. Protect other work from damage due to cleaning operations. Do not use cleaning materials or processes that could change the character of exposed concrete finishes.

**3.2**

7. Variation from level : Plus or minus 12.5 mm in any 12.0 metre run.

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B. Provide temporary bracing during erection of masonry work, maintain in place until building structure provides permanent bracing.

C. Delivery & Storage: Delivery cement and other cementitious materials to the site in unbroken bags, barrels, or other approved containers, plainly, marked and labelled with manufacturer's names and brands. Store cementitious materials in dry, weathertight sheds or enclosures and handle so as to prevent entry of foreign materials and damaged by water or dampness. Handle masonry units with care to avoid chipping and breakage. Protect masonry material from damage, and except for sand, keep dry until use.

## PART 2 - PRODUCTS

### 2.1 MANUFACTURERS

Subsequent to compliance with requirements manufacturers offering 99986 0.0000 gq0 0.0000187S611.999988(e)-4(ri)7F2 7

C. Accessories

1. Horizontal Joint Reinforcement: Horizontal joint reinforcement shall be reinforcing bars, as indicated, or fabricated from cold drawn steel wire, conforming to ASTM A82. The wire shall be zinc-cated after fabrication by the hot-dip process in accordance with ASTM A 153 either bright steel, copper-clad steel, or zinc coated after fabrication. Reinforcement shall consist of two or more parallel longitudinal wires, not less than 34 mm (9-gage) in diameter. Cross wires shall be crimped to provide an effective moisture drip in wall cavity. The out-to-out spacing of the longitudinal wires shall be 40 to 45 mm less than the actual width of the masonry. The distance between welded contracts of cross wires with each longitudinal wire shall not exceed 400 mm. Joint reinforcement shall be provided in flat sections, not less than 3 meters in length, except that corner reinforcement and other special shapes may be less in length.

2. Ties: Provide approved design of copper-clad steel, zinc coated steel, or non-corrosive metal having the equivalent total strength of steel types. Zinc coat items by the hot-dip process after fabrication to a minimum of 1.25 ounces of zinc per square foot of surface when tested in accordance with ASTM A 90.

   a. Wire Mesh Ties: Wire not lighter than 20-gage, galvanized, 12 mm mesh with width of not less than the thickness of masonry.

   b. Corrugated Metal Ties: Not less than 22 mm wide by approximately 150 mm long and not lighter than 22-gage.

3. Fastenings: Provide suitable and approved bolts, metal wall plugs, or other approved metal fastenings for securing furring to masonry and elsewhere as necessary.

D. Control Joints: Closed cell neoprene or PVC factory fabricated solid sections, resistant to oils and solvents, flexible at temperatures from 5 degree C after five hours exposure; ASTM D2240 minimum durometer 70.

## PART 3 - EXECUTION

### 3.1 PREPARATION

A. Supply metal anchors to concrete and structural steel trades for placement; provide in sufficient quantity and direct placement.

B. Ensure items built in by other trades are properly located and sized.

C. Establish lines, levels and coursing, protect from disturbance.

D. Clean surfaces to receive masonry free from dirt, debris, and laitance.

### 3.2 INSTALLATION

A. Installation: Coordinate masonry work with the work of other trades to accommodate built-in items and





thickness. Keep exposed surfaces clean and free from blemishes or defects. Lay units in the bond pattern indicated.

L. Forms and Shoring: Construct to the shape, lines and dimensions of members indicated and make sufficiently rigid to prevent deflections which may result in cracking to other damage to supported masonry. Forms shall remain on girders and beams not less than 10 days after completion of the members. Not less than 16 hours shall elapse before uniformly distributed construction loads are applied to completed masonry members. Not less than 64 hours shall elapse before concentrated loads are applied.

**3.3 CLEANING**

A. Remove excess mortar and smears upon completion of masonry work.
B. Point or replace defective mortar, match adjacent work.

C. Clean soiled surfaces using a non-acidic solution which will not harm masonry or adjacent materials, consult masonry manufacturer for acceptable cleaners.

D. Use non-metallic tools in cleaning operations.

D. Protection: Protect work which may be damaged, stained or discolored during cleaning operations.

F. Pointing: Upon completion of masonry work, cut out defective mortar joints and tuck joints and all holes solidly with mortar.

G. Cleaning: Clean exposed masonry surfaces with clear water and still fiber brushes and rinse with clear water. Where stains, mortar, or other soil remain, continue cleaning as follows: Clean masonry surfaces by scrubbing with warm water and soap and rinsing thoroughly with clean water. Restore damaged, stained, and discolored work to its original conditions or replace with new work.

H. Maintain protective boards at exposed external corners which may be damaged by construction activities; protect without damaging completed work.

**END OF SECTION**

# SECTION 05510

# METAL FABRICATIONS AND ASSEMBLIES

## PART 1 - GENERAL

### 1.1 WORK INCLUDED

A. Stock and custom fabricated metal items Scheduled at end of this Section, complete in respect to function as intended.

B. Metal fabrications includes items made from iron, steel, and aluminum shapes, plates, bars, strips, tubes, pipes and castings which are not a part of structural steel or metal systems specified elsewhere

### 1.2 QUALITY ASSURANCE

A. Field Measurement: Take field measurement prior to preparation of shop drawings and fabrication, where possible; do not delay job progress; allow for trimming and fitting where necessary.

B. Structural Performance: Detail and provide assemblies which, when installed, comply with applicable code requirements for s



C. Exposed Mechanical Fastenings: Flush countersunk fasteners unobtrusively located, consistent with design of Structure.

D. Fit and shop assemble in largest practical sections for delivery.

E. Make exposed joints flush butt type, hairline joints where mechanically fastened.

1. Fabricate joints exposed to weather in manner to exclude water or provide weep holes where water could accumulate.

F. Supply components required for proper anchorage of metal fabrications; fabricate anchorage and related components of same material and finish as metal fabrication.

G. Railings: Welded construction.

1. Pipe and Round Tube Railings: Comply with requirements of NAAMM "Pipe Railing Manual"; welded construction; cap exposed ends.

(a) Railings: ASTM A53, Type S seamless pipe, Grade A or B.

2. Other Railings: Configurations indicated on Drawings.

H. Ladders and Ships Ladders: Comply with requirements of ANSI A14.3 and local codes.

1. Rungs: Fit in centerline of side rails, plug weld and grind smooth on outer rail faces; provide non-slip surface on top of rung, similar to epoxy resin and aluminium oxide granules surface.

I. Steel Grating: Comply with requirements of NAAMM "Heavy Duty Metal Bar Grating Manual"; work to dimensions accepted on shop drawings, using proven details of fabrication or support.

1. Standard Type: Welded with a plain traffic surface.

2. Do not shop prime surfaces in contact with concrete or requiring field welding; shop prime in one coat.

2. Provide minimum ASTM A123 or A525 G90 coating, 0.90 oz/ft galvanized coating (formerly 1.25 Commercial Class); iron and steel hardware galvanized conforming with ASTM A153.

a. Preparation: SSPC-SP3, Power Tool Cleaning.

**PART 3 - EXECUTION**

**3.1 ERECTION**

A. Obtain Architect's review prior to site cutting or making adjustments which are not part of scheduled work.

1. Perform cutting, drilling, and fitting required for installation. Set units accurately in location, with edges and surfaces level, plum, and true.

B. Install items square and level, accurately fitted and free from distortion or defects detrimental to appearance or performance.

1. Supply items requiring be casting into or embedding in other materials to appropriate trades.

2. Ensure alignment with adjacent construction; coordinate with related work to ensure no interruption in installation.

C. Make provision for erection stresses by temporary bracing; keep work in alignment.

D. Field bolt and weld to match standard of shop bolting and welding; hide bolts and screws whenever possible, where not hidden, use flush countersunk fastenings.

1. Perform field welding in accordance with AWS D1.1.

E. After installation, touch-up field welds and scratched and damaged surfaces; use primer consistent with shop coat or recommended for galvanized surfaces, as applicable.

F. Replace items damaged in course of installation and construction.

**3.2 SCHEDULE**

A. Supply and install metal fabrications listed in Schedule complete with anchorage and attachments necessary for installation.

1. Schedule lists principal items only, refer to Drawing details for items not listed.

B. Schedule:

1. Miscellaneous angles, plates and attachments to be set in concrete or masonry for anchorage of other items.

2. Iron and steel shapes, sleeves, anchors, connectors and fastenings required to complete construction work, and which are not provided in other specification sections.
a. Rough hardware, including bolts, fabricated plates, anchors, hangers, dowels and

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**SECTION 05520**

1. Where installed products are indicated to comply with certain design loadings, include structural computations, material properties, and other information needed for structural analysis that has been signed and sealed by a qualified professional engineer responsible for their preparation.

C. Samples for verification purposes of each type of exposed finish required, prepared on components indicated below that are of the same thickness and metal indicated for final unit of work. Where finishes involve normal color and texture variations, include sample sets showing full range of variations expected.

1. 150 mm long sections of each distinctly different linear railing member including handrails, top rails, posts, and balusters.

2. Fittings and brackets.

3. Welded connections.

D. Product test reports from and based on tests performed by qualified independent testing laboratory evidencing compliance of railing components and systems with requirements based on comprehensive testing of current products.

E. Qualification data for firms and persons specified in "Quality Assurance" Article to demonstrate their capabilities and experience. Include list of completed projects with project names, addresses, names of Architects and Owners, plus other information specified.

**1.5 QUALITY ASSURANCE**

surfaces exhibiting pitting, seam marks, roller marks, stains, discolorations, or other imperfections on finished units are not acceptable.

B. Aluminum : Alloy and temper recommended by aluminum producer and finisher for type of use and finish indicated, with not less than the strength and durability properties of the alloy and temper designated below for each aluminum form required :

1. Extruded Bar and Tube : ASTM B 221, alloy 6063T5/T52.

2. Extruded Structural Pipe and Tube : ASTM B 429, 6063-T5/T52.

3. Drawn Seamless Tube : ASTM B 210, 6063-T832.

4. Plate and Sheet : ASTM B 209, 6061 - T6.
5. Die and Hand Forgings : ASTM B 247, 6061 - T6.

6. Castings : ASTM B 26, A356 - T6.

C. Stainless Steel : Austenitic stainless steel grade and type designated below for each form required:
1. Tubing : ASTM A 554, grade as follows :
Grade MT 304.

2. Castings : ASTM A 743, Grade CF 8 or CF 20.

3. Plate : ASTM A 167, Type as follows :
Type 304.

D. Steel Pipe : ASTM A 53; finish, type, and weight class as follows :

1. Galvanized finish for exterior installations and throughout project.

2. Gype F, standard weight (schedule 40), unless otherwise indicated, or another weight, type, and grade required by structural loads.

E. Steel Tubing : Product type (manufacturing method) and other requirements as follows :

1. Cold-Formed Round Steel Tubing : ASTM A 500, grade as indicated below :

a. Grade A, unless otherwise indicated or required by structural loads.

2. Hot-Formed Round Steel Tubing : ASTM A 501.

3. For exterior installations and where indicated, provide tubing with hot-dip galvanized coating per ASTM A 53.

F. Steel Plates, Shapes, and Bars : ASTM A 36.

G. Gray Iron Castings : ASTM A 48, Class 30.
H. Malleable Iron Castings ASTM A 47, grade 32510.

I. Brackets, Flanges, and Anchors : Cast or formed metal of the same type material and finish as

**2.3 GROUT AND ANCHORING CEMENT**

A. Non-shrink, Non-metallic Grout : Premixed, factory-packaged, non-staining, non-corrosive, nongaseous grout complying with CE CRD-

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J. For railing posts set 611.9999(611-134.999)( )-134.924.999230 sls slso pl4.924.8.oogt st ostgtt tt 2(m)-8(m)

C. 180-Grit Polished Finish : Oil ground, uniform 180-grit textured finish.

D. 320-Grit Polished Finish: Oil ground, smooth uniform 320-grit finish.

E. Bright, Directional Polish : AISI No. 4 finish.

F. Non Directional Polish : AISI No. 7 finish

G. Mirror Polish : AISI No. 8 finish

H. When polishing is completed, passivate and rinse surfaces. Remove embedded foreign matter and leave surfaces chemically clean.

**2.10 GALVANIZED FINISH**

A. General : Hot-dip galvanize items indicated to be galvanized to comply with applicable standard listed below :

1. ASTM A 153 for galvanizing iron and steel hardware.

2. ASTM A 123 for galvanizing iron and steel products made from rolled, pressed, and forged steel shapes, castings, plate bars, and strips.

B. For exterior steel railings and handrails formed from steel pipe with galvanized finish, galvanize fittings, brackets, fasteners, sleeves and other ferrous components.

C. For interior steel railings and handrails formed from steel pipe with galvanized finish, galvanize fittings, brackets, fasteners, sleeves, and other ferrous components.

**PART 3 - EXECUTION**

**3.1 PREPARATION**

A. Coordinate setting drawings, diagrams, templates, instructions, and directions for installation of anchorages, such as sleeves, concrete inserts, anchor bolts, and miscellaneous items having integral anchors that are to be embedded in concrete as masonry construction. Coordinate delivery of such items to project site.

**3.2 INSTALLATION, GENERAL**

A. Fit exposed connections accurately together to form tight, hairline joints.

B. Cutting, Fitting, and Placement : Perform cutting, drilling, and fittng required for installation of handrails and railings and glazing. Set handrails and railings accurately in location, alignment, and elevation, measured from established lines and levels and free from rack.

1. Do not weld, cut, or abrade surfaces of handrails and railing components that have been coated or finished after fabrication and are intended for field connection by mechanical or other means without further cutting or fitting.

2. Set posts plumb within a tolerance of 6 mm in 3.6 metres.

3. Align rails so that variations from level for horizontal members and parallel with rake of steps and ramps for sloping members and from parallel with rake of steps and ramps for sloping members





B. Anchor rail end sot metal surfaces with oval or round flanges.

1. Weld flanges to rail ends

C. Install removable railing sections where indicated in slip-fit metal sockets cast into concrete. Accurately located sockets to match post spacing.

**3.6**

# SECTION 05800

# EXPANSION JOINT COVER SYSTEMS CONTROL

## PART 1 – GENERAL

### 1.01 RELATED WORK

A. Requirements: Provide all labor, materials, equipment and services, and perform all operations required for complete installation of Expansion Control and related work in accordance with the Contract Documents.

B. Work Included: The work of this section shall include, but not limited to the following:
1. Floor expansion joint cover assemblies.
2. Wall/ceiling expansion joint cover assemblies.
3. Exterior expansion joint seals

C. Related Work Specified Elsewhere:
1. Section 03300 – Cast-in Place concrete.
2. Section 04220 – Concrete Unit Masonry
3. Section 05500 – Metal Fabrications
4. Section 05990 – Miscellaneous Metals
5. Section 07900 – Sealants and Caulking

### 1.02 QUALITY ASSURANCE

A. Materials and work shall conform to the latest edition of reference specifications specified herein and to applicable codes and requirements of local authorities having jurisdiction.

B. Fire Performance Characteristics:
1. Fire Resistance: Where indicated provide expansion joint cover assemblies tested by Underwriter's Laboratories, in accordance with [ANSI/U.L. NO. 263 and ASTM E 119/E 814]

## 1.04 SUBMITTALS

A. Product Data: Submit copies of manufacturer's latest published literature for materials specified herein for approval, and obtain approval before materials are fabricated and delivered to the site.

B. Certificates: Material test reports from qualified independent testing laboratory indicating and interpreting test results elative to compliance of fire-rated expansion joint assemblies with requirements indicated.

C. Shop Drawings

a. Submit shop drawings for work specified herein for approval and obtain approval prior to fabrication and shipment of materials to the job site.

b. Shop drawings showing full extent of expansion joint cover assemblies; including large scale details indicating profiles of each type of expansion joint cover assembly, splice joints between sections, joinery with other types, special end conditions, anchorages, fasteners, and relationship to adjoining work and finishes. Include description of materials and finishes and installation instructions.

D. Samples

a. Samples of materials specified herein and shall be submitted for approval, and approval obtained before materials are delivered to the site.

b. Include samples of each type of metal finish indicated on metal of same thickness and alloy to be used in work. Where normal and texture variations are to be expected, include two or more units in each set of samples showing limits of such variations.

B. Stainless Steel Frame Caps and Plates (optional): SS304

C. Stainless Steel Caps (optional): SS316

D. Brass Cap (optional): CZ108

E. Vinyl gasket: Flexible thermoplastic or equal. Color – Black.

F. Vapor Barrier: 40 mils thick PVC or 30 mils thick EPDM.

G. Fire Barrier: Reactofire 900 Blanket System to UL2079 with hose stream test to walls required for indicated fire resistance rating.

H. Roof Bellows: EPDM Bellows with galvanized flanges. [Neoprene Bellows] [Aluminum Flanges] [Stainless Steel Flanges] [Copper Flanges]

I.

a. Provide one frame on floor side of joint only. Provide wall side frame where required by manufacturer's design.
b. Provide extruded vinyl bumper between frame and cover plate to prevent rattle.
c. Angled Cover Plates: Attach angled cover plates for floor-to-wall joints to wall with countersunk, flat-head exposed fasteners secured to drilled-in-place anchor shields, unless otherwise indicated, at spacing recommended by joint cover manufacturer.

5. Wall, Ceiling, Roof and Soffit Joint Cover Assemblies
   a. Fixed Metal Cover Plates: Provide on one side of the joint a concealed, continuously anchored frame fastened to wall, ceiling, or soffit only on one side of joint. Extend cover to lap each side of joint and to permit free movement on one side. Attach cover to frame with cover in close contact with adjacent finished surfaces. Extruded vinyl bumpers should be installed where moving aluminum frames and plates come into contact.
   b. Floating Metal Cover Plates: Secure the cover plate in or on top of frames in such a manner as to have free movement on both sides.
   c. Flexible Sealant: Apply an approved single component elastomeric polyurethane sealant between joint cover assemblies and finished surfaces.
   d. Provide manufacturer's continuous EPDM rubber vapor barrier for joint covers on exterior and/or on interior of exterior walls and all floor applications.

6. Joint Cover Assembly with Santoprene Seal

   a. Provide joint cover assemblies consisting of continuously anchored aluminum extrusions and continuous extruded preformed santoprene seals of profile indicated in colors specified to suit types of installation conditions shown. Santoprene seals should be available in colors of design choices.
   b. Santoprene seal should press in from the front of the extruded frames, forming a watertight seal.

D. Metal Finishes should comply with NAAMM "Metal finishes Manual" for finish designations and application recommendations, except as otherwise indicated. Apply finishes in factory after products are fabricated. Protect finishes on exposed surfaces with protective covering before shipment.

1. Floors: Mill Finish Aluminum or 2B Finish – Stainless Steel
2. Interior Walls, Ceilings and Soffits: 204-R1 Clear Anodized Aluminum or No. 4 Brushed Finish – Stainless Steel
3. Exterior Walls and Roofs: Mill Finish Aluminum
4. Elastomeric Seals: Black, Gray, Beige Off-White, Bright White, Custom - Santoprene

## PART 3 – EXECUTION

### 3.01 EXAMINATION

A. Examine conditions at the job site where work of this section is to be performed to insure proper arrangement and fit of the work. Start of work implies acceptance of job site conditions.

B. Insure substrate is sound; gap is consistent and is ready to accept installation of frames.

### 3.02 PREPARATION

A. Examine the Contract Drawings and specifications in order to insure the completeness of the work required under this Section.

B. Verify all measurements and dimensions at the job site and cooperate in the coordination and scheduling of the work of this Section with the work of related trades, with particular attention given to the installation of items embedded in concrete and masonry so as not to delay job progress.

C. Provide templates as required to related trade for location of support and anchorage items.

**3.03 INSTALLATION**

A. Installation must be provided by factory-trained installers directly employed by the product provider. Subcontracted installers are not allowed.

B. In addition to requirements of these specifications, comply with manufacturer's instructions recommendations for phases of work, including preparation of substrate, applying materials, and protection of installed units.

C. Provide anchorage devices and fasteners where necessary for securing threaded fasteners with drilled-in expansion shields for masonry and concrete where anchoring members are not embedded in concrete. Provide fasteners of metal, type, and size to suit type of construction indicated and provide for secure attachment of expansion joint cover assemblies.

D. Perform cutting, drilling and fitting required for installation of expansion joint covers. Install joint cover assemblies in true alignment and proper relationship to expansion joints and adjoining finished surfaces measured from established lines and levels.

E. Allow adequate free movement for thermal expansion and contraction of metal to avoid bucking.

F. Set floor covers at elevations to be flush with adjacent finished floor materials.

H. Interior and exterior floor covers must be provided with an underlying continuous vapor barrier.
I. All exterior joint covers must be provided with an underlying vapor barrier.

J. All backfill for recessed floor covers must be high quality flexible epoxy grout.

K. Locate wall, ceiling, roof, and soffit covers in continuous contact with adjacent surfaces. Securely attach in place with required accessories.

L. Locate anchors at interval recommended by manufacturer, but not less than 75mm from each end and not more than 600mm on centers.

M. Maintain continuity of expansion joint cover assemblies with end joints held to a minimum and metal members aligned mechanically using splice joints. Cut and fit ends to produce joints that will accommodate thermal expansion and contraction of metal to avoid bucking of frames.

N. Provide a bead of one component elastomeric polyurethane sealant in manu-facturer's extruded aluminum recesses between all profiles and profile frames and adjacent finished surfaces.

O. Roof Bellows should be installed on waterproof concrete upstand as recom-mended by manufacturer.

6. Installation of Roof Bellows: Install bellows to comply with manu-facturer's instructions and with minimum number of end joints.

7. For straight sections provide bellows in continuous lengths.

8. Vulcanize splice joints X86X86X86X86X86X86X86X86X86X86X86X86X86X86X86X86X86X86X86X86

1. Seal end joints within continuous runs and joints at transitions in accordance with manufacturer's directions to provide a watertight seamless installation.

2. Install exterior flexible seal in standard lengths.

3. Seal transitions and butt joints in accordance with manufacturer's instructions.

Q. Installation of Fire Barriers

1. Install fire barriers in accordance with building codes using manufacturer's recommended procedures.

2. Install transition splices and end joints to provide continuous fire resistance in accordance with manufacturer's instructions.

**3.04 CLEANING AND PROTECTION**

A. Do not remove strippable protective material until finish work in adjacent areas is complete. When protective material is removed, clean exposed metal surfaces to comply with manufacturer's instructions.

C. Install external santoprene seal once finish work in adjacent areas is complete.

D. Ordinary dirt and smudges on metal components and seals can be removed with a water based cleaner such as Fantastik. Wipe clean with a sponge or soft cloth.

D. Not recommended for cleaning are steel wool or powdered abrasive cleaners, because they mar the surface leaving an unsightly appearance. Do not use active solvent-type cleaning preparations, such as nail polish remover, tar and bug removers, etc.

**END OF SECTION**

PROPOSED GALERIES TOWER MANILA

ASYA DESIGN PARTNER

[redacted]

**SECTION 06200**

**FINISH CARPENTRY**

## PART 1 - SUBMITTALS

### 1.1 SUBMITTALS

A. General: Submit the following in accordance with Conditions of Contract and Division 1 Specification Sections.

B. Product data for each type of factory-fabricated product and process specified, including details of construction relative to materials, dimensions of individual components, profiles, textures, and colors.

C. Wood treatment data as follows including chemical treatment manufacturer's instructions for handling, storing, installation, and finishing of treated material:

1. For each type of preservative treated wood product include certification by treating plant stating type of preservative solution and pressure process used, net amount of preservative retained, and compliance with applicable standards.
2. For water-borne treated products include statement that moisture content of treated materials was reduced to levels indicated prior to shipment to Project site.
3. For fire-retardant-treated wood products include certification by treating plant that treated materials comply with specified standard and other requirements.
4. Material test reports from qualified independent testing laboratory indicating and interpreting test results relative to compliance of fire-retardant-treated wood products with requirements indicated.
5. Warranty of chemical treatment manufacturer for each type of treatment.

D. Samples for initial selection purposes of the following in form of manufacturer's color charts consisting of actual units or sections of units showing full range of colors, textures, and patterns available for each type of material indicated.

1. Each type of paneling specified.
2. Each type of siding specified.

E. Samples for verification purposes of the following:

1. Lumber and panel products for non-factory-applied finish, 50 square inches for lumber and 8-1/2 inches by 11 inches for panels for each species and cut, finished on one side and one edge, with one-half of exposed surface finished.

2. Lumber and panel products with factory-applied finish, 50 square inches for lumber and 8-1/2 inches by 11 inches for panels for each finish system and color.

### 1.2 QUALITY ASSURANCE

A. Installer Qualifications: Arrange for installation of finish carpentry by a firm that can demonstrate successful experience in installing finish carpentry items similar in type and quality to those required for this Project.

### 1.3 DELIVERY, STORAGE, AND HANDLING

A. Delivery and Storage: Keep materials under cover and dry. Protect against exposure to weather and contact with damp or wet surfaces. Stack lumber as well as plywood and other panels. Provide for air circulation within and around stacks and under temporary coverings including polyethylene and similar materials.

B. Do not deliver interior finish carpentry until environmental conditions meet requirements specified for installation areas. If finish carpentry must be stored in other than installation areas, store only in areas where environmental conditions meet requirements specified for installation areas.

### 1.4 PROJECT CONDITIONS

A. Environmental Conditions: Obtain and comply with finish carpentry manufacturer's and installer's coordinated advice for optimum temperature and humidity conditions for finish carpentry during its storage and installation.

B. Weather Conditions: Proceed with finish carpentry only when existing and forecasted weather conditions will permit exterior finish carpentry to be installed in compliance with manufacturer's recommendations and when substrate is completely dry.

### 1.5 WARRANTY

A. Special Project Warranty for Siding: Submit a written warranty, executed by manufacturer, agreeing to repair or replace siding that fails in materials or workmanship within the specified warranty period. Failures include, but are not limited to, deformation or deterioration of siding beyond normal weathering. This warranty shall be in addition to, and not a limitation of, other rights the Owner may have against the Contractor under the Contract Documents.

1. Warranty period for factory-applied finish is 5 years after date of Substantial Completion.
2. Warranty period for siding (excluding finish) is 25 years after date of Substantial Completion.

## PART 2 - EXECUTION

### 2.1 EXAMINATION

A. Examine substrates for compliance with requirements for installation tolerances and other conditions affecting installation and performance of finish carpentry. Do not

proceed with installation until unsatisfactory conditions have been corrected.

### 2.2 PREPARATION

A. Clean substrates of projections and substances detrimental to application.

B. Condition finish carpentry to average prevailing humidity conditions in installation areas before installation for a minimum of 24 hours unless longer conditioning recommended by manufacturer.

C. Backprime lumber for painted finish exposed on the exterior. Comply with requirements for surface preparation and application in Section "Painting."

### 2.3 INSTALLATION, GENERAL

## 2.4 STANDING AND RUNNING TRIM AND RAILS

A. Install with minimum number of joints practical, using full-length pieces from maximum lengths of lumber available. Stagger joints in adjacent and related standing and running trim and rails. Cope at returns and mitre at corners to produce tight-fitting joints with full-surface contact throughout length of joint. Use scarf joints

for end-to-end joints. Plan

**SECTION 07120**

**EPOXY PORCELAIN LINING NON-TOXIC WATERPROOFING**

**PART 1- SPECIFICATIONS FOR CISTERN WATERTANKS AND OVERHEAD WATERTANK COATINGS:**

**1.1 Method of Application of Epoxy Porcelain Lining Non-Toxic Waterproofing**

A. All surfaces must be smooth, firm, dry, clean and free of rubbish, loose or foreign materials.

B. Concrete surface shall be fully cured and acid etched with neutraliser and washed with clean water.

C. Application of four (4) mils coats of CORD / HIBOND Epoxy White, non-toxic porcelain finish.

D. Cure finished waterproofed areas by forty-eight (48) hours.

E. During the forty-

B. Samples, 75 mm by 150 mm. minimum size, of each Epoxy Porcelain Lining non-toxic waterproofing material specified for Project.

C. Manufacturers Contact Information

1. Cord

| | | |
|---|---|---|
| Company | : | Cord Chemicals |
| Contact Person | : | Dennis Pangan |
| Address | : | Mandaluyong City |
| Contact Number | : | 5314436 / 5311175 |

2. Hibond

| | | |
|---|---|---|
| Company | : | Sealbond Chemical |
| Contact Person | : | Gigi Sambrano |
| Address | : | Brgy. Ibayo, Tipas, Taguig City |
| Contact Number | : | 881-8813 / 881- |

Warranty period is 10years after date of substantial completion.

**PART 2-PRODUCT-APPLICATOR (JAN OWEN MARTIN CONSTRUCTION CORP.)**

**PART 3-EXECUTION**

3.1 **INSTALLATION/TESTING**

A. Permit membrane to cure conditions that will not contaminate or deteriorate waterproofing material. Block off traffic and protect membrane from physical damage.

B. Install protection course on cured membrane (after testing, if required) without delay to minimize period of membrane exposure.

**SECTION 07120**

**EPOXY PORCELAIN LINING NON-TOXIC WATERPROOFING**

**PART 1- SPECIFICATIONS FOR CISTERN WATERTANKS AND OVERHEAD WATERTANK COATINGS:**

**1.1 Method of Application of Epoxy Porcelain Lining Non-Toxic Waterproofing**

A. All surfaces must be smooth, firm, dry, clean and free of rubbish, loose or foreign materials.
B. Concrete surface shall be fully cured and acid etched with neutraliser and washed with clean water.
C. Application of four (4) coats of Twinkote / Sealbond Epoxy White, non-toxic porcelain finish. Reinforced with Kavron Fiberglass Mesh.
D. Cure finished waterproofed areas by forty-eight (48) hours.
E. During the forty-eight (48) hours of curing time, test waterproofed areas if seepage is still present.
F. If no seepage is present, protect the finished waterproofed areas by filling-in with water to avoid any hydrostatic water from damaging the works.

**1.2 GUARANTEE:**

A. The contractor shall guarantee that the work specified in this division shall be free from defects of materials and workmanship.
B. The contractor shall make good all damages or failures resulting from the use of defective materials and poor workmanship.
C. The following failures will be considered as defective works:

1) Leakages
2) Peeling of waterproofing materials
3) Delamination of
4) Air bubbles

**1.3 SYSTEM PERFORMANCE REQUIREMENTS**

A. Performance Requirements, General: Provide Epoxy Porcelain Lining non-toxic waterproofing membrane system that is watertight and complies with performance requirements specified, as demonstrated by testing performed by a
nationally recognized independent testing laboratory of manufacturer's standard systems according to test methods indicated.

**1.4 SUBMITTALS**

A. Product data for each type of Epoxy Porcelain Lining non-toxic waterproofing specified, including data substantiating that materials comply with specified requirements.
B. Samples, 75 mm by 150 mm. minimum size, of each Epoxy Porcelain Lining non-toxic waterproofing material specified for Project.
C. Manufacturers Contact Information

1. Twin kote

| | | |
|---|---|---|
| Company | : | Twin Aces Industries |
| Contact Person | : | |
| Address | : | Judge Juan Luna, SFDM, Q.C. |
| Contact Number | : | |

2. Sealbond

| | | |
|---|---|---|
| Company | : | Sealbond Chemical |
| Contact Person | : | Gigi Sambrano |
| Address | : | Brgy. Ibayo, Tipas, Taguig City |
| Contact Number | : | 881-8813 / 881-1477 |
| Email Address | : | jhelet_01@yahoo.com |

PROPOSED GALERIES TOWER MANILA

07120 – EPOXY PORCELAIN LINING
NON-TOXIC

PROPOSED GALERIES TOWER MANILA
NATIVIDAD LOPEZ ST. COR. CABRAL ST. MANILA

ASYA DESIGN PARTNER
GRAND TAIPAN LAND DEVELOPMENT INC.

[redacted]

| | | |
|---|---|---|
| Contact Person | : | Gigi Sambrano |
| Address | : | Brgy. Ibayo, Tipas, Taguig City |
| Contact Number | : | 881-8813 / 881-1477 |
| Email Address | : | jhelet_01@yahoo.com |

**1.4 QUALITY ASSURANCE**

Installer Qualifications: Engage an experienced Installer who has completed elastomeric waterproofing applications similar in material, design, and extent to that indicated for Project and that has resulted in construction with a record of successful in-service performance.

Assign work closely associated with waterproofing, including (but not limited to) waterproofing

**SECTION 07140**

**STYROZIL / ELASTIKOTE / SUN & RAIN ELASTOMERIC WATERPROOFING SYSTEM**

## PART 1 - GENERAL

### 1.1 SUMMARY

A. Specification for Exterior walls, Light court walls, parapet walls, Perimeter Fire Walls and all exposed Wall (refer plan)
   1.

Assign work closely associated with waterproofing, including (but not limited to) waterproofing accessories, and flashing used in conjunction with waterproofing, expansion joints in membrane, insulation, and protection course on membrane, to Installer of elastomeric waterproofing, for single, undivided responsibility.

**1.5 DELIVERY, STORAGE, AND HANDLING**

Deliver primary waterproofing materials to job site in manufacturer's original, unopened containers, bearing manufacturer's name and label and the following information:

0. Product name.
1. Product description (generic product classification)
2. Batch number under which product was produced
3. National standards with which the product complies
4. Application instructions

**1.6 PROJECT CONDITIONS**

A. Substrate: Proceed with waterproofing operations only after substrate construction and penetrating work have been completed.

B. Weather: Proceed with waterproofing operations only when existing and forecast weather conditions will permit work to be performed in accordance with manufacturer's recommendations.

**1.7 WARRANTY**

Special Project Warranty: Submit a written warranty executed by manufacturer, agreeing to repair or replace elastomeric waterproofing, including making good all adjacent work disrupted as a result, that fails in materials and workmanship within the specified warranty period. This Warranty shall be in addition to and not a limitation of other rights the Owner may have against the Contractor under the Contract Documents.

Warranty period is 5 years after date of substantial completion.

**PART 2 - PRODUCTS/APPLICATOR – (NICEMAN WATERPROOFING)**

PROPOSED GALERIES TOWER MANILA
NATIVIDAD LOPEZ ST. COR. CABRAL ST. MANILA

ASYA DESIGN PARTNER
GRAND TAIPAN LAND DEVELOPMENT INC.

2. Prepare only as much slurry mixture as can be applied within 20 to 30 minutes. Do not add more water when mixture starts to thicken. Stir frequently.

**2.9 HORIZONTAL CONCRETE SURFACES:**

1. Apply Thoroseal SLX 1.00 kg/m2 (2.0 lbs/sq. yd) in slurry consistency. Coating shall be uniformly applied in quantities specified. All vertical construction joints shall be treated with Thoroseal SLX 1.00 kg/m2 (Two successive coatings) in slurry consistency on wetted surfaces immediately prior to pouring of concrete.

**PART 3:**

## 3.1 QUALITY ASSURANCE

A. Qualification of Installer: Minimum five years successful experience in projects of similar scope and acceptable to material manufacturer.

B. Inspection: Manufacturer's representative shall inspect work of Project on regular basis and provide certification water proofing has been installed in accordance with manufacturer's recommendations.

1. Visibly check coated surfaces with strong light to assure surfaces are completely covered, with no damage points, misses, holidays or air pockets in evidence.
2. Recoat areas found to be insufficiently coated by initial coating prior to Owner's testing.

C. Owner Representative: Independent testing engineer will observe installation of work as Owner's representative, paid for by Owner.

1. Observations do not relieve installer of responsibility for exercising controls and inspections to assure proper installation.

2. Notify Owner and Architect minimum 7 days prior to date waterproofing work is to begin.

3. Recoat areas where test samples have been removed and restore sample areas to specified thickness.

## 3.2 SUBMITTALS

A. Product Data: Manufacturer's recommendations for surface conditioner, elastic flashing, joint cover sheet and crack sealant, and temperature range for application of waterproofing.

B. Certification: Manufacturer's certification installer is acceptable and manufacturer's representative's certification work has been installed in accordance with manufacturer's recommendations.

Provide record of required wet mil thickness tests.

C. Samples 300 x 300 min. size on simulated substrate.

D. Warranty: Submit sample of warranty at time of bid.

E. Manufacturers Contact Information

| | | |
|---|---|---|
| Contact Person : | Haziel Carpio | |
| Address | : | Canlubang, Calamba Laguna |
| Contact Number | : | 049-5490001 / 049-889-4321 |

## 3.3 SITE CONDITIONS

A. Do not apply waterproofing to damp, dirty, dusty or otherwise unsuitable surfaces.

Allow concrete surfaces to cure minimum 28 days.

B. Provide positive ventilation within water tanks to remove toxic fumes.

## 3.4 WARRANTY

A. Provide for correcting failures of waterproofing to resist water penetration, except where failures are result of structural failures of building.

Hairline cracking of concrete due to temperature or shrinkage is not considered structural failure.



[redacted]

B. Repair waterproofing and pay for or replace damaged materials and surfaces

C. Warranty Period: Five years from Date of Substantial Completion.

Liability: No monetary limit.

**PART 4 - PRODUCTS/APPLICATOR (JAN OWEN MARTIN CONSTRUCTION CORP.)**

**4.1 ACCEPTABLE MANUFACTURERS**

MASTERSEAL 530 – THOROSEAL SLX

**4.2 MATERIALS**

A. Water Tank Waterproofing: Crystalline type cementitious type to substrates, free of asphaltic and coal tar products; fasteners,

Record wet thickness measurements at representative points during application and indicate on Project Record Documents.

D. Seal items projecting through waterproofing.

**5.4 FIELD QUALITY CONTROL**

Review initial filling of tanks with water and observe for minimum 24 hours; where leaks are revealed, empty tank and repair leaks revealed by examination of structure.

Where leakage was observed, repeat observation and repair until no leaks are observed.

**END OF SECTION**

## SECTION 07145

## VANDEX SUPER CRYSTALLINE / CAPILLARY TYPE OF WATERPROOFING

**PART 1**

**1.1** Specifications for Sumpit/Freight Pit; Escalator Pit; Domestic /Fire Water tank, Pump Room, Sewerage Treatment Plants, Basement Retaining Walls and Floors and other a

**2.2 MATERIALS:**

1. Vandex Super Crystalline waterproofing material is a surface applied waterproofing compound, consisting of grey Portland cement, specially treated quartz sand and a compound of active chemicals.
2. When Vandex Super is applied to a concrete surface the active chemicals combine with the free lime and moisture present in the capillary tract, to form insoluble crystalline complexes. These crystals block the capillaries and minor shrinkage cracks in the concrete to prevent any further water ingress (even under pressure.)
3. Vandex Super protects concrete against sea water, waste water, aggressive ground water and certain chemical solutions.

**2.3 APPLICATION**

Vandex Super is applied with brush, suitable spray equipment or by dry sprinkling.

**2.4**

**2.11 REMEDIAL WORK:**

Should any leakage occur due to negligence in the application during the construction and maintenance period of the project, the applicator shall take immediate remedial measures to stop all water infiltration. This work shall be carried out in the strictest compliance of the manufacturer's written instruction at no additional cost.

**2.12 CURING:**

The day following the Vandex Super application the slab should be dampened once or twice by fog spraying the surface, and within the following 24hours the slab should be wetted down in order to cure the surface. This curing must be carried out by means of water, and cannot be done by using a curing compound. The surface should be kept damp for at least 5 days.

**PART 3:**

**3.1 QUALITY ASSURANCE**

A. Qualification of Installer: Minimum five years successful experience in projects of similar scope and acceptable to material manufacturer.
B. Inspection: Manufacturer's representative shall inspect work of Project on regular basis and provide certification water proofing has been installed in accordance with manufacturer's recommendations.

1. Visibly check coated surfaces with strong light to assure surfaces are completely covered, with no damage points.
2. Recoat areas found to be insufficiently coated by initial coating prior to Owner's testing.

C. Owner Representative: Independent testing engineer will observe installation of work as Owner's representative, paid for by Owner.

1. Observations do not relieve installers of responsibility for exercising controls and inspections to assure proper installation.
2. Notify Owner and Architect minimum 7 days prior to date waterproofing work is to begin.
3. Recoat areas where test samples have been removed and restore sample areas to specified thickness.

**3.2 SUBMITTALS**

A. Product Data: Manufacturer's recommendations for surface conditioner, and temperature range for application of waterproofing.
B. Certification: Manufacturer's certification installer is acceptable and manufacturer's representative's certification work has been installed in accordance with manufacturer's recommendations.
Provide record of required wet mil thickness tests.
C. Samples 300 x 300 min. size on simulated substrate.
D. Warranty: Submit sample of warranty at time of bid.
E. Manufacturers Contact Information

| | | |
|---|---|---|
| Manufacturer | : | Tremco Construction Products Group |
| Contact Person | : | Edgar Chua (Country Manager) |
| Address | : | 10$^{F}$ |

### 3.4 WARRANTY

A. Provide for correcting failures of waterproofing to resist water penetration, except where failures are result of structural failures of building.
   Hairline cracking of concrete due to temperature or shrinkage is not considered structural failure.
B. Repair waterproofing and pay for or replace damaged materials and surfaces
C. Warranty Period: Five years from Date of Substantial Completion.

### PART 4 - PRODUCTS/APPLICATOR (NICEMAN WATERPROOFING)

| | | |
|---|---|---|
| Company | : | Niceman Incorporated |
| Contact Person | : | Eric Nicerio |
| Address | : | Dela Paz, Pasig City |
| Contact Number | : | 8645- |

**SECTION 07150**
**POLYGLASS POLYBOND P – ITALY 3mm SANDED**
**TORCH ON WATERPROOFING MEMBRANE**

**PART 1: SPECIFICATIONS FOR ALL MAIDS ROOM, WALK IN CLOSET, PUBLIC & RES'L T&B, DRIVERS T&B, KITCHEN AND OTHER SMALL INTERIOR AREAS**

**1.1 METHOD OF APPLICATION OF POLYGLASS POLYBOND 3.0mm SANDED TORCH ON WATERPROOFING MEMBRANE:**

1. All areas to be waterproofed shall be wood-trowelled smooth , firm , dry and clean of rubbish , loose or foreign materials and obstruction , bumps flattened and holes filled and levelled. Installation of cants in the angle formed by the horizontal and vertical surfaces , as well as the installation of metal fittings and similar work shall be in place and/or completed.

2. Coat entire area with primer around the perimeter extending 0.20 cm. on the vertical walls and the base of all raised elements, then let primer dry well.

3. Align rolls with a 100 mm ( 4" ) side overlaps , starting from the drain towards the roof center.

4. Re-roll and then torch apply with a 150 mm ( 6 " ) end overlap and 100 mm (4") side lap and make sure each sheet is carefully and completely bonded to the surface.

5. Re-check all seams and smooth edges with a pre-heated trowel.

**1.2 TOPPING:**

Finished waterproofing works shall be protected with 2" lean concrete topping (slope towards the drain) reinforced with welded wire mesh on the flooring of the waterproofed surface. These shall be done by others under waterproofing installer's supervision in order to avoid damage on the waterproofing.

**1.3 SYSTEM PERFORMANCE REQUIREMENTS:**

Performance Requirements, General: Provide Polyglass Polybond P 3.0mm Sanded Torch on Waterproofing membrane system that is watertight and complies with performance requirements specified, as demonstrated by testing performed by a nationally recognized independent testing laboratory of manufacturer's standard systems according to test methods indicated.





**1.4 SUBMITTALS:**

A. Product data for each type of Polyglass Polybond P 3.0mm Sanded Torch on Waterproofing membrane specified including data substantiating that materials comply with specified requirements.

| | |
|---|---|
| Thickness | : 3mm |
| Dimensions | : 1 x 10 |
| Tensile Strength Max | |
| Longitudinal | : 750 (-20%) |
| Transversal | : 550 (-20%) |
| Elongation at Break | |
| Longitudinal | : 40 (-15) |
| Transversal | : 40 (-15) |
| Blow Resistance | : ≥700 |
| Resistance to Static Load | : ≥10 |
| Resistance to Laceration | |
| Longitudinal | : 150 (-30%) |
| Transversal | : 150 (-30%) |
| Dimension Stability | : ≤0.3 |
| Low Temperature Flexibility | : ≤5 |
| Shift Resistance at High Temp. | : ≥110 |
| Water Vapour Transmission Property | : 20000 |

B. Samples 75 mm by 150 mm. Minimum size, of each Polyglass Polybond 3.0Kg Sanded Torch on Waterproofing membrane application similar in material, design, and extent to that indicated for Project and that has resulted in construction with a record of successful in-service performance.

Assign work closely associated with waterproofing, including (but not limited to) waterproofing accessories, and flashing used in conjunction with waterproofing, expansion joints in membrane, insulation, and
protection course on membrane, to Installer of torch-applied waterproofing, for single, undivided responsibility.

C. Manufacturers Contact Information

| | | |
|---|---|---|
| Company | : | Polyglass Italy |
| Contact Person | : | Andrea Storani<br>Export Manager |
| Address | : | Via dell'Artigianato, 34<br>31047 PONTE DI PIAVE (TV) – ITALY |
| Contact Number' | : | +39 04227547 - Telefax +39 0422/854118 |
| Email Address | : | andrea.storani@polyglass.it |

**1.5 DELIVERY, STORAGE, AND HANDLING:**

A. Bitumen Primer
Deliver primary waterproofing materials to job site in manufacturer's original, unopened containers, bearing manufacturer's name and label and the following information:

1. Product name
2. Product description (generic product classification)
3. Batch number which product was produced



[redacted]

**POLYGLASS POLYBOND P 3.0mm SANDED**
**TORCH ON WATERPROOFING MEMBRANE**
**07150 –**

**SECTION 07150**

**TECHNOBIT 3mm SANDED**
**TORCH ON WATERPROOFING MEMBRANE**

**PART 1: SPECIFICATIONS FOR ALL TOILETS, WALK IN CLOSET, KITCHEN, AHU ROOM AND OTHER SMALL INTERIOR AREAS**

**1.1 METHOD OF APPLICATION OF TECHNOBIT 3.0mm SANDED TORCH ON WATERPROOFING MEMBRANE:**

1. All areas to be waterproofed shall be wood-trowelled smooth, firm, dry and clean of rubbish, loose or foreign





**PART 3-EXECUTION**

**3.1 INSTALLATION / TESTING**

A. Permit membrane to conditions that will not contaminate or deteriorate waterproofing material. Block off traffic and protect membrane from physical damage.

B. Install protection course on membrane (after testing, if required) without delay to minimize period of membrane exposure.

C. Flood -testing with a minimum depth of 2" on the entire waterproofed areas for a period of twenty four (24) hours by main contractor under supervision of waterproofing installer.

**END OF SECTION**

**SECTION 07155**
**POLYGLASS POLYBOND P Italy 4.5KG MINERAL**
**TORCH ON WATERPROOFING MEMBRANE**

**PART 1:** **SPECIFICATIONS FOR ROOFDECK, ELEVATOR MACHINE ROOM DECK, LEDGES, OVERHEAD TANK, TRANSFORMER VAULT, GENSET RM, ALL OPEN DECK INCLUDING UTILITY RM, AIRCON LEDGES, AMENITY DECK, DRIVEWAY & PARKING LEVEL CONCRETE GUTTERS, STAIR DECK, PLANTBOXES, CARPARKS, HELIPAD, BALCONIES, AND OTHER LARGE EXTERIOR AREAS**

**1.1 METHOD OF APPLICATION OF POLYGLASS POLYBOND 4.5 KG MINERAL TORCH ON WATERPROOFING MEMBRANE:**

1. All areas to be waterproofed shall be wood-trowelled smooth , firm , dry and clean of rubbish , loose or foreign materials and obstruction , bumps flattened and holes filled and levelled. Installation of cants in the angle formed by the horizontal and vertical surfaces , as well as the installation of metal fittings and similar work shall be installed in place and/or completed.

2. Coat of entire area with primer around the perimeter extending 0.30 cm. On the vertical walls and the base of all raised elements, then let primer dry well.

3. Align rolls with a 100 mm ( 4" ) side overlaps , starting from the drain towards the roof center.

4. Re-roll and then torch apply with a 150 mm ( 6 " ) end overlap and 100 mm (4") side lap sheet is carefully and completely bonded to the surface.

5. 4.5kg MINERAL POLYBOND when used, should be given particular attention to the head overlapping to avoid direct flame on the mineral chippings side so as not to discolour the cap sheet membrane.

6. Re-check all seams and smooth edges with a pre-heated towel

**1.2 TOPPING:**

Finished waterproofing works shall be protected with 2" lean concrete topping (slope towards the drain) reinforced with welded wire mesh on the flooring of the waterproofed surface. These shall be done by others under waterproofing installer's supervision in order to avoid damage on the waterproofing.

**1.3 SYSTEM PERFORMANCE REQUIREMENTS:**

Performance Requirements, General: Provide Polyglass Polybond 4.5kG Mineral Torch on Waterproofing membrane system that is watertight and complies with performance requirements specified, as demonstrated by testing performed by a nationally recognized independent testing laboratory of manufacturer's standard systems according to test methods indicated.



[redacted]





4. National standards with which the product complies
5. Application instructions

B. Waterproofing membrane musty bear Polyglass mark on the roll with plastic wrap

**1.6 PROJECT CONDITIONS**

A. Substrate: Proceed with waterproofing operations only after substrate construction and penetrating work have been completed.

B. Weather: Proceed with waterproofing operations only when existing and forecast weather conditions will permit work to be performed in accordance with manufacturer's recommendations.

**1.7 WARRANTY**

Special Project Warranty: Submit a written warranty executed by manufacturer, agreeing to repair or replace Polyglass Polybond 4.5 Kg Sanded Torch on Waterproofing membrane, including making good all adjacent work disrupted as a result, that fails in materials and workmanship within the specified warranty period. This warranty shall be in addition to and not a limitation off other rights the Owner may have against the Contractor under the Contract Documents.

Warranty period is 10 years after date of substantial completion.

**PART 2-PRODUCTS -APPLICATOR (JAN OWEN MARTIN CONSTRUCTION CORP.)**

**PART 3-EXECUTION**

**3.1 INSTALLATION/TESTING**

A. Permit membrane to conditions that will not contaminate or deteriorate waterproofing material. Block off traffic and protect membrane from physical damage.

B. Install protection course on membrane (after testing, if required) without delay to minimize period of membrane exposure.

C. Flood -testing with a minimum depth of 2" on the entire waterproofed areas for a period of twenty





PROPOSED GALERIES TOWER MANILA
NATIVIDAD LOPEZ ST. COR. CABRAL ST. MANILA

ASYA DESIGN PARTNER
GRAND TAIPAN LAND DEVELOPMENT INC.

Water Vapour Permeability : 40000

B. Samples 75 mm by 150 mm. Minimum size, of each Technobit 4.5 Kg Torch on Waterproofing membrane application similar in material, design, and extent to that indicated for Project and that has resulted in construction with a record of successful in-service performance.

Assign work closely associated with waterproofing, including (but not limited to) waterproofing accessories, and flashing used in conjunction with waterproofing, expansion joints in membrane, insulation, and
protection course on membrane, to Installer of torch-applied waterproofing, for single, undivided responsibility.

C. Manufacturers Contact Information

| | | |
|---|---|---|
| Company | : | Technobit Egypt |
| Contact Person | : | Khaled Elnezami<br>Export Manager |
| Address | : | 60 Mahmasha st., Al-Shrabya, Cairo, Egypt |

**PART 3-EXECUTION**

**3.1 INSTALLATION/TESTING**

A. Permit membrane to conditions that will not contaminate or deteriorate waterproofing material. Block off traffic and protect membrane from physical damage.
B. Install protection course on membrane (after testing, if required) without delay to minimize period of membrane exposure.
C. Flood -testing with a minimum depth of 2" on the entire waterproofed areas for a period of twenty four (24) hours by main contractor under supervision of waterproofing installer.

**END OF SECTION**

# SECTION 07210

# BUILDING INSULATION

## PART 1 - GENERAL

### 1.1 SUMMARY

A. Refer to the Drawings for locations and extent of required Insulation, to be supplied and installed in conformity with the Conditions, Supplementary Conditions General Requirements (Division 01), Specifications, Drawings, Addenda, and Change Orders.

B. Insulation products in this Section are generally specified in terms of required performance, with reliance on Contractor's design using the expertise of manufacturers of Insulation. Contractor is to notify Architect in event that thickness of any proposed product would be greater than indicated on the drawings or herein and would interfere with clearance or tolerance of other construction.

C. Insulation is required at locations as indicated on the Drawings, summarised as follows:

1. @ Roof area.

D. Required work of Insulation includes manufactured products for control of heat transfer, membranes for control of vapor migration through installed construction, and accessories for maintaining correct position and shape of insulation during and after installation.

### 1.2 QUALITY ASSURANCE AND PERFORMANCE

A. The solar radiant barrier shall consist of a high density and tough olefin center core reinforcement and 2 pressure laminated aluminum-metalized film on both sides.

The center core shall be made from olefin of high tensile strength to enable the radiant barrier to be tear proof and be able to support itself without wire netting when laid from purlin to purlin.

The highly polished reflective surface of the metalized film on both sides shall be protected against all weather conditions by a proprietary waterproof coating to resist surface oxidation. The radiant barrier shall possess the following properties.

Reflectivity = 0.95(both sides)
Emissivity = 0.05(both sides)

B. Thermal Resistivity: Where thermal resistivity of insulation materials is designated by r-values, they represent the rate of heat flow through a homogeneous material, measured by test method as stated in the reference standard for the material, or as otherwise identified.
Thermal resistivity is expressed by the temperature difference in degrees F between the two exposed faces required to cause one BTU to flow through one square foot per hour at mean temperature indicated.

The required re-values for insulation are as follows:

1. Roof areas: R-Value 14.5, PARSEC, R –Value 17 (submit sample for approval)

C. Fire Performance Characteristics: Provide insulation materials which are identical to those whose fire performance characteristics, as listed for each material or assembly of which insulation is a part, have been determined by testing, using methods as indicated below, by Underwriters Laboratory or other testing Laboratory acceptable to authorities having jurisdiction.
D. Surface Burning Characteristics: ASTM E84
E. Fire Resistance Ratings: ASTM E119
F. Combination Characteristics: ASTM E136
G. Prohibition of Asbestos Content: Insulation materials containing asbestos materials, including microscopic proportions of asbestos materials will be rejected.
H. Owner may decide to test insulation materials proposed by Contractor. Cost of testing will be arranged by Owner and paid for by Owner. For tests where materials fail to meet standards as specified, cost of testing shall be paid by Contractor.

### 1.3 SUBMITTALS

A. Product Data: Submit manufacturer's product literature and installation instructions for each type of insulation and vapor retarder material required.
B. Thermal Transfer Calculations: Obtain information of thermal transmittance values from manufacturers of



| | | |
|---|---|---|
| | (British Standard 476 Part 7) | |
| 12. | Fire Propagation Test (British Standard 476 Part 6) | Class 0 |
| 13. | MIL-Standard 810 Salt Frog Test (Method 507) | No defects Observed |
| 14. | MIL-Standard 810 Humidity Test (Method 509) | No defects Observed |

C. Phenolic Board Insulation: Rigid cellular thermal insulation with thermoset core of Phenolic-based closed cells, and 2-ply foil-Kraft liner facing laminated to both sides. Physical properties of installed products shall comply with properties as follows, measured in accordance with ASTM methods as stated:

1. Compressive Strength: 25 psi, with 10% deformation when tested and measured as ASTM D1621, Procedure A.
2. Water Vapor Permeability: Not to exceed 8. 19 perminch, when tested and measured as ASTM 355.
3. Dimensional Stability: Change of length, width, and thickness not to exceed 1.0% when tested and measured as ASTM D2126, Procedure C.
4. Water Absorption: Change of volume not to exceed 1.8% when tested and measured as ASTM C272 after 2-hour immersion.
5. Density: Not less than 2.5 pounds per cu ft, when measured as ASTM D1622.
6. Surface Burning Characteristics: Spread of flame and smoke development not to exceed 25 and 15 respectively.

C. Cellular Glass Insulation: Rigid cellular thermal insulation with closed cells, complying with requirements of ASTM E136 for testing of combustion characteristics. In block form, complying with ASTM C552 for type 1.

D. Glass Fiber Insulation: Thermal insulation manufactured by combining glass fibers with thermosetting resin binders to comply with ASTM C553, Class B-4, or ASTM C612 for class as indicated.

E. Molded-Polystyrene Board Insulation: ASTM C 578 for type indicated below:

1. Type I, 0.9-lb/cu. ft (15-kg/cu. m) minimum density.
2. Surface-Burning Characteristics: Maximum flame-spread and smoke-developed indices of 75 and 450, respectively.

F. Poyisocyanurate Board Insulation: Rigid, cellular polyisocyanurate thermal insulation faced on both sides with aluminum foil to comply with requirements indicated below.

1. Federal Standard: FS HH-I-1972/1, 2 (reinforced core).
2. ASTM Standard: ASTM C 1289, Type I, Class 1 or 2.
3. Surface-Burning Characteristics: Maximum flame-spread and smoke-developed indices of 754.
4. Thermal Resistivity: 7.2deg Fxhxsq. ft./Btux in at 75 deg F (50Kxm/W at 24 deg. C.

2.3D Unfaced, Flexible Glass-Fiber Board Insulation: ASTM 612, Type IA or ASTM C 553, Types II, III, and I.

1. Nominal Density: Not less than 1.5 lb./cu. ft./24 kg/cu. m) nor more than 1.65 lb./cu. ft. (26-kg/cu. m).
2. Thermal Resistivity: 4.13 deg. F x h x sq. ft./Btu x in. at 75 deg F (28.6 K x m/W at 24 deg C).
3. Surface

25 and 50, respectively. 2.3D Glass-M at-Faced, Glass-Fiber Board Insulation for Sprandel Glass Panel: AST M C 612, Type IA or Type IB, faced on one side with black glass-fiber mat.

1. Nominal density of 2.25 lb/cu. ft. (36 kg/cu. m), thermal resistivity of 4.3 deg Fx h x sq. ft./Btu x in. at 75 deg F (29.8 K x m/W at 24 deg C).

I. Sound attenuation insulation: Apply to inside face of mechanical rooms. Use semi-rigid Vinyl-faced fiberglass, non-com bustible. Attach to walls using stick clips. Material to be 50 m m thick O w ens-Corning Stonebrook or equal.

**2.4 AUXILIARY MATERIALS**

A. Sealing Tape: The sealing tape used shall be an alumin

## PART 3 - EXECUTION

### 3.1 INSPECTION AND PREPARATION

A. Require installer to examine substrates and conditions under which work of Insulation is to be installed. Refer to other Sections for required standard of construction for substrates and adjacent construction. Proceeding construction complying with requirements as specified in other Sections shall be considered as suitable to receive installation of Insulation. Obtain installer's written list detailing conditions, if any, detrimental to correct performance of work of Insulation. Do not proceed with installation of insulation until unsatisfactory conditions have been corrected.

B. Remove contaminants and substances from substrates where harmful to insulation or to vapor retarder, including removal of projections and sharp edges which might puncture vapor retarders.

### 3.2 INSTALLING INSULATION

A. Manufacturer's Recommendations: Comply with printed recommendations of manufacturer for installation of each type of Insulation. If printed instructions are not available or do not apply to context, consult manufacturer's technical representative for specific recommendations before proceeding with work.

B. Install Insulation full thickness at locations as indicated to receive Insulation. Cut and fit closely around projections and obstruction. Fill voids with Insulation as indicated and as necessary to maintain continuous

**SECTION 07840**

**FIRESTOPPING**

## PART 1 - GENERAL

### 1.01 RELATED DOCUMENTS

A. Drawings and general provisions of Contract, including General and Supplementary Conditions and Division-1 Specification Section, apply to work specified in this section.

### 1.02 DEFINITIONS

A. Firestopping: Material or combination of materials used to retain integrity of fire-rated construction by maintaining an effective barrier against the spread of flame, smoke, and hot gases through penetrations in, or construction joints between, fire rated wall and floor assemblies.

### 1.03

D. Underwriters Laboratories (UL) of Northbrook, IL publishes tested systems in their "FIRE RESISTANCE DIRECTORY" that is updated annually.

1. UL Fire Resistance Directory:

a. Firestop Devices (XHJI)
b. Fire Resistance Ratings (BXRH)
c. Through-Penetration Firestop Systems (XHEZ)
d. Fill, Voids, or Cavity Material (XHHW)
e. Forming Materials (XHKU)
f. Joint Systems (XHBN)
g. Perimeter Fire Containment Systems (XHDG)

2. Alternate Systems: “Omega Point Laboratories Directory” (updated annually).

E. Test Requirements: ASTM E 1966, “Standard Test Method for Fire Resistive Joint Systems”

F. Test Requirements: ASTM E 2307, “Standard Test Method for Determining Fire Resistance of Perimeter Fire Barrier Systems Using Intermediate-Scale, Multi-story Test Apparatus”

G. Inspection Requirements: ASTM E 2174, “Standard Practice for On-site Inspection of Installed Fire Stops”

H. ASTM E 84, “Standard Test Method for Surface Burning Characteristics of Building Materials”

I. International Firestop Council Guidelines for Evaluating Firestop Systems Engineering Judgments

J. All major building codes: ICBO, SBCCI, BOCA, and IBC.
(Note to specifier: Retain or delete building codes listed above as applicable)

K. NFPA 101 - Life Safety Code

L. NFPA 70 - National Electric Code

**1.06 QUALITY ASSURANCE**

A. A manufacturer’s direct representative (not distributor or agent) to be on-site during initial installation of firestop systems to train appropriate contractor personnel in proper selection and installation procedures. This will be done per manufacturer’s written recommendations published in their literature and drawing details.

B. Firestop System installation must meet requirements of ASTM E 814, UL 1479 or UL 2079 tested assemblies that provide a fire rating equal to that of construction being penetrated.

C. Proposed firestop materials and methods shall conform to applicable governing codes having local jurisdiction.

D. Firestop Systems do not reestablish the structural integrity of load bearing partitions/assemblies, or support live loads and traffic. Installer shall consult the structural engineer prior to penetrating any load bearing assembly.

E. For those firestop applications that exist for which no UL tested system is available through a manufacturer, an engineering judgment derived from similar UL system designs or other tests will be submitted to local authorities having jurisdiction for their review and approval prior to installation. Engineering judgment drawings must follow requirements set forth by the International Firestop Council.



C. Firestopping Materials are either “cast-in-place” (integral with concrete placement) or “post installed.” Provide cast-in-place firestop devices prior to concrete placement.

**2.02**

1. Hilti FS-ONE Intumescent Firestop Sealant

H. Foams, intumescent sealants, or caulking materials for use with flexible cable or cable bundles, the following products are acceptable:

1. Hilti FS-ONE Intumescent Firestop Sealant
2. Hilti CP 620 Fire Foam
3. Hilti CP 601s Elastomeric Firestop Sealant
4. Hilti CP 606 Flexible Firestop Sealant

I. Non-curing, re-penetrable intumescent putty or foam materials for use with flexible cable or cable bundles, the following products are acceptable:

1. Hilti CP 618 Firestop Putty Stick
2. Hilti CP 658T Firestop Plug

J. Wall opening protective materials for use with U.L. listed metallic and specified nonmetallic outlet boxes, the following products are acceptable:

1. Hilti CP 617 Firestop Putty Pad

K. Firestop collar or wrap devices attached to assembly around combustible plastic pipe (closed and open piping systems), the following products are acceptable:

1. Hilti CP 643N Firestop Collar
2. Hilti CP 644 Firestop Collar
3. Hilti CP 645/648 Wrap Strips

L. Materials used for large openings and complex penetrations made to accommodate cable trays and bundles, multiple steel and copper pipes, electrical busways in raceways, the following products are acceptable:

1. Hilti CP 637 Firestop Mortar
2. Hilti FS 657 FIRE BLOCK
3. Hilti CP 620 Fire Foam
4. Hilti CP 675T Firestop Board

M. Non curing, re-penetrable materials used for large size/complex penetrations made to accommodate cable trays and bundles, multiple steel and copper pipes, electrical busways in raceways, the following products are acceptable:

1. Hilti FS 657 FIRE BLOCK
2. Hilti CP 675T Firestop Board

N. Sealants or caulking materials used for openings between structurally separate sections of wall and floors, the following products are acceptable:

1. Hilti CP 672 Speed Spray
2. Hilti CP 601s Elastomeric Firestop Sealant
3. Hilti CP 606 Flexible Firestop Sealant
4. Hilti CP 604 Self-Leveling Firestop Sealant

O. For blank openings made in fire-rated wall or floor assemblies, where future penetration of pipes, conduits, or cables is expected, the following products are acceptable:

1. Hilti FS 657 FIRE BLOCK
2. Hilti CP 658T Firestop Plug

P. Provide a firestop system with a "F" Rating as determined by UL 1479 or ASTM E814 which is equal to the time rating of construction being penetrated.

Q. Provide a firestop system with an Assembly Rating as determined by UL 2079 which is equal to the time rating of construction joint assembly.

**PART 3 - EXECUTION**

**3.01 PREPARATION**

A. Verification of Conditions: Examine areas and conditions under which work is to be performed andors srf5( )p-82(u)8

# SECTION 07920

# JOINT SEALERS

## PART 1 - GENERAL

### 1.1 SUMMARY

A. Joint Sealers are specified by requirements for performance, with reliance on Contractor's design using the expertise of Sealant manufacturers, to propose sealants selected from acceptable Sealants as specified.

Use types of Sealants as indicated at locations where types are identified on Drawings. For other requirements related to Sealers, refer to Section 08900, Exterior Cladding Systems, applicable to Sealers located as follows:

1. Basement
2. Roofing
3. Exterior

B. Cross Reference: Installing of Joint Sealers is specified in work of other Sections, by cross reference to this Section. Refer to Division 8 Section " Glazing", for Joint Sealers supplied and installed as work of glazier.

C. Required work of Joint Sealers includes sealant, backing, joint fillers, bond-breakers, priming, and related accessories as normally recommended by the manufacturer for a complete and effective installation.

### 1.2 REFERENCE STANDARDS

A. Quality standards for Sealers are identified in this Section by reference to published standards as follows:

1. ASTM C719.....Testing of Sealants
2. ASTM C790.....Latex Sealants
3. ASTM C804.....Sealants cured by solvent release
4. ASTM C920.....Properties of Sealants
5. ASTM C962.....Installing Elastomeric Sealers

### 1.3 PERFORMANCE REQUIREMENTS

A. For requirements related to installed performance of Sealers, in context of adjacent construction, refer to Section 08900, Exterior Cladding Systems.

B. Use Sealers manufactured to establish and maintain water- tight and airtight continuous seals, and as follows:

1. Adhesion to adjacent construction where designed for adhesion. Non-adhesion where not required to adhere.

2. Chemically and electrolitically passive in contact with atmospheric contaminants and materials of adjacent construction.

### 1.4 QUALITY ASSURANCE

A. Installer's Experience: Use installers and labor approved by or licensed by the manufacturer. Alternatively, engage an Installer who has successfully completed within the last 3 years not less than 3 installations of similar Joint Sealers for projects of similar type and size as required for this project.

B. Products: Use products and formulations previously demonstrated by successful use in similar projects and similar climatic conditions.

C. Single Source Responsibility: For each required type of joint, install Joint Sealer and related accessories from a single manufacturer. Products from other sources may be used in combination only if recommended in the standard printed instructions of the sealant manufacturer.

**1.5 TESTING OF SEALERS**

A. For requirements related to testing of Sealers, refer to Section 08900, Exterior Cladding Systems.

B.

D. Samples for Initial Selection: For each type and color of required Sealer, submit manufacturers standard sample strips of actual products, to show the full standard range of available colors.

1. Samples shall be used to review conformance with required colors, and shall not denote approval of technical properties of products.

E. Samples for Final Selection: Conforming to manufacturer's technical analysis of joint performance. Install each type and color of proposed Sealer in joints of width same as proposed in technical analysis of manufacturer's design proposal. Install samples in finish materials representing finishes same as to be installed in completed construction.

F. Test Reports: To verify adhesion and compatibility between proposed Sealants and materials of adjacent construction, including substrates and backings. Include recommendations of sealant manufacturer with regard to primers, preparation of substrates, and reliability of adhesion.

1. For products from manufacturers other than those listed in this Section, submit the manufacturer's comprehensive test data for each type of sealant proposed to be used. Test data shall apply to current formulations. If available, include test results for sealants tested after during

1. Exterior, exposed to weather.
2. Edges of frames for glass and glazing.

**PART 2 - PRODUCTS**

1. RHODOSIL Silicones;
2. GE;
3. Dow Coning
4. Bostik
5. Or Approved equal

**2.1 MATERIALS GENERALLY**

A. Compatibility: Provide sealers, sealants, backer rods, gaskets, resilient spacers, and other related materials compatible with each other and with substrates under conditions of service and application, as demonstrated by sealant manufacturer's testing and field experience.

B. Colors: Provide custom colors for exposed joint sealers conforming to colors of Architect's samples.

C. Colorless Sealants: Use colorless silicon sealant at locations as indicated and at all other glass-to-glass joints.

D. Materials and Standard: Sealants shall be elastomeric, complying with the requirements of ASTM C920, or other equivalent published standard of the country of origin. Propose Sealants selected from available types of elastomeric Sealants.

1. Use silicon Sealants at locations identified on Drawings, and at all glass-to-glass joints exposed to weather.

2. Propose polymer formulations to deliver performance as required for each context.

E. Elastomeric Sealant Standard: Provide manufacturer's standard chemically curing, elastomeric sealant of base polymer indicated complying with ASTM C 920 requirements.

F. Acrylic Sealant: One-Part, non-sag, solvent-release-curing acrylic terpolyner sealant complying with AAMA 808.0 or FS TT-S-00230, or both, with capability, when tested per ASTM C 719, to withstand the following percentage change in joint width existing at time of application without failing adhesively or cohesively.

1. Maximum cyclic movement capability: plus or minus 12-1/2 percent.

G. Butyl Sealant: Manufacturer's standard one-part, non-sag, solvent-release-curing, polymerized butyl sealant complying with ASTM C 1085 and formulated with minimum of 75 percent to be non-staining, paintable, and have a tack-free time of 24 hours of loss.

H. Acrylic-Emulsion Sealant: One-part, non-sag, mildew-resistant, paintable, acrylic-emulsion sealant complying with ASTM C 834.

I. Silicone-Emulsion Sealant: Product complying with ASTM C 834 and, except for weight loss measured per ASTM C 92, with ASTM C 920, that accommodates joint movement of not more than 25 percent in both extension and compression for a total of 50 percent.

J. Acoustical Sealant: Non-sag, paintable, non-staining, latex sealant complying with ASTM C 834 and effective in reducing airborne sound transmission through perimeter joints and openings in building construction as demonstrated by testing representative assemblies per ASTM E 90.

K. Acoustical Sealant for Concealed Joints: Non-drying, non-hardening, non-skinning, non-taining, gunnable, synthetic rubber sealant recommended for sealing interior concealed joints to reduce transmission of airborne sound.

L. Tape Sealant: Solvent-free, butyl-based tape sealant with a solid content of 100 percent formulated to be non

3. Install at indicated locations, and as necessary for bond breaking and backing for injected Sealants.

D. Spacer Profiles: Propose and install extruded polymeric spacers, of neoprene or other approved material, as continuous spacers at indicated locations and wherever necessary to provide a resilient surface for spacing and distribution of concentrated loading.

E. Bond-Breaker Tape: Polyethylene or other plastic tape as recommended by sealant manufacturer for preventing sealant from adhering to rigid, inflexible joint fillers, or to joint surface at back of joint where adhesion would result in sealant failure. Provide self-adhesive tape where applicable.

**2.5 MISCELLANEOUS MATERIALS**

A. Primer: As recommended for context by manufacturer of Sealer. Use at locations as follows:

1. For adhesion between sealants and joint substrates
2. According to results observed in pre-construction testing and trial portions.

B.

**3.6 TEMPORARY PROTECTION**

A. Protect installed Joint Sealers during and after curing, to prevent contact with contaminants and to exclude damage by adjacent operations of construction. Protect so as to deliver installed Sealants in correct condition at time of Substantial Completion.

B.

# SECTION 07921

# POLYURETHANE SEALANT

## PART 1- GENERAL

### 1.1 RELATED DOCUMENTS

**A.** Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

### 1.2 REFERENCES

**A.** **ASTM C 719-14** - Standard Test Method for Adhesion and Cohesion of Elastomeric Joint Sealants Under Cyclic Movement ( Hockman Cycle)

**B.** **ASTM D 23699-10** - Standard Test Method for Volatile Content of Coatings

**C.** **ASTM D 1475-13** - Standard Test Method for Density of Liquid

**D.** **ASTM C 661-06 (2011)** – Standard Test Method for Indentation Hardness of Elastomeric-Type Sealants by Means of a Durometer

**E.** **ASTM C920** - Standard Specification for Elastomeric Joint Sealants

### 1.3 ACTION SUBMITTALS

**A.** Product Data: For each type of product, including installation instructions.

### 1.4 QUALITY ASSURANCE

.

**A.** Installer Qualifications: An authorized representative who is trained and approved by manufacturer. Installer must be an approved applicator of Speciality Engineering Chemicals.

## PART 2-DELIVERY, STORAGE AND HANDLING

**A.** Deliver materials to job site in manufacturer's unopened containers with all labels intact and legible at time of use.

**B.** Maintain the products in accord with manufacturer's recommendations with proper precautions to ensure fitness of material when installed.

## PART 3- PRODUCT DATA

### 3.1 2.2. MATERIALS, GENERAL

**A.** One –part polyurethane, medium modulus construction sealant

| | | |
|---|---|---|
| 1. | Product: | Polyurethane Sealant |
| 2. | Movement Accommodation Factor: | 25% |
| 3. | Elongation at Break: | 750% |
| 4. | Modulus @ 100% Elongation: | 0.40 MPa |
| 5. | Curing Speed (23°C 50% R.H.): | 3.0mm/day |
| 6. | Shore A Hardness: | 35 |
| 7. | Tooling time @ 20°C: | 60 mins. |
| 8. | Skin formation time (23°C 50% R.H.): | 120 mins. |
| 9. | Specific Gravity @ 20°C: | 1.18 |
| 10. | Temperature resistance: | -30°C to 70°C |
| 11. | Consistency: | Thixotropic |
| 12. | Paint compatibility: | Water-based paints |

**B.** Manufacturers

1. G.E
2. Dow Corning
3. Rhodosil
4. Or Approve equal

**PART 4 – EXECUTION**

**4.1 EXAMINATION**

**A.** Examine substrates, areas, and conditions, with Installer present, for compliance with requirements for surface smoothness, surface moisture, and other conditions affecting performance of traffic-coating work.

**B.** Prepare written report, endorsed by Installer, listing conditions detrimental to performance of traffic-coating work.

**C.** Proceed with installation only after substrate construction and penetrating work have been completed and unsatisfactory conditions have been corrected.

1. Begin coating application only after minimum concrete-curing and -drying period recommended in writing by traffic-coating manufacturer has passed and after substrates are dry.
2. Application of coating indicates acceptance of surfaces and conditions

**4.2 PREPARATION**

**A. 1. SURFACE PREPARATION**

It is essential that the joint arises are clean and free from any deleterious matter which could prevent adequate bond to the substrate.
The substrates must be clean, dry, free of dust and grease and other contaminations.

**SECTION 08120**

**ALUMINUM GLASS DOORS/WINDOW**

## PART 1.1 GENERAL

A. This Section includes architectural-grade aluminum sliding glass doors.

1. Glazing requirements, including those specified to be factory-glazed, are specified in Division 8 Section "Glazing."

B. Design Requirements: Comply with structural performance, air infiltration, and water penetration requirements indicated in AAMA 101 for each grade and performance class required.

1. Optional Performance Class Requirements: Where the required design pressure exceeds the minimum for the specified door grade, comply with AAMA 101, Section 3, "Optional Performance Classes" for higher than minimum performance class.

a. Design wind velocity at Project site is 175 mph.(Verify Struct'l designer)

2. Conform with design requirements specified in Section 08520 - Aluminum Windows.

C. Testing Requirements: Test each door grade and size, according to ASTM E 330 for structural performance, ASTM E 283 for air infiltration, and ASTM E 547 and ASTM E331 for water penetration. Comply with AAMA 101 for sample size.

1. Operating Force: Adjust each moving panel before testing so the maximum force to open the panel is 30 lbf and the maximum force required to maintain motion is 20 lbf.

D. Performance Requirements: Sliding glass doors shall satisfy primary and optional performance requirements for designation SGD-AW80. Each door unit shall comply with the following performance requirements:

1.

1. Product data for each type of door required. Include profiles and dimensions; construction details; data on finishes, hardware, and accessories; and recommendations for maintenance and cleaning of exterior surfaces.

2. Shop drawings for each type of door required. Include layout and installation details, including anchors; typical elevations; full-size details of members, including reinforcement; glazing details; and hardware and accessories.

3. Samples for Initial Color Selection: Samples of each finish on 12-inch-long sections of frame members.

4. Samples for Verification Purposes: The Architect reserves the right to require additional samples that show fabrication and workmanship and design of hardware and accessories.

5. Certification: Provide certification by an independent testing agency showing that each type, grade, and size of door complies with performance requirements indicated.

6. Material Test Reports: Provide certified test results from a recognized independent testing agency showing that each required type, grade, and size of door complies with performance requirements indicated.

H. Safety Glass Standard: Where required, provide glass that complies with ANSI Z97.1 and 16 CFR for Category II materials.

I. Glazing Standards: Comply with recommendations of the Flat Glass Marketing Association (FGMA) "Glazing Manual" and "Sealant Manual."

J.

complying with ASTM A 123; provide strength sufficient to withstand design pressure indicated.

C. Compression Weatherstripping: Provide compressible weatherstripping of molded PVC gaskets complying with ASTM D 2287, or molded expanded EPDM or neoprene gaskets complying with ASTM C 509, Grade 4, designed for permanent resilient sealing under bumper or wiper action, concealed when door is closed.

D. Sliding Weatherstripping: Provide woven-pile weatherstripping of wool, polypropylene, or nylon pile, with resin-impregnated backing fabric and an aluminum backing strip; comply with AAMA 701.2.

E Glass and Glazing Materials: Comply with ANSI Z97.1 and requirements of Division 8 Section "Glazing" of these specifications.

F

H. Finishes: Comply with N AMM "Metal Finishes Manual."

1. High-Performance Coating: AA-C12C42R1x; . Prepare, pretreat, and apply coating to expose all surfaces to comply with coating and resin manufacturer's instructions.

1) Color and Gloss: As selected by the Architect from manufacturer's standard choices for color and gloss reference.
Manufacturer
a. Dulux ICI - Republic powdercoat

**1.3 EXECUTION**

A. Examination: Inspect openings before installation. Verify that rough opening is correct and the sill plate is level. Do not proceed until unsatisfactory conditions have been corrected.

B. Installation: Comply with manufacturer's instructions.

1. Separate aluminum and other corrodible surfaces from sources of corrosion or electrolytic action at contact points with other materials.

2.

**SECTION 08125**

**TECHNICAL INFORMATION FOR POLYESTER POWDERS**

The data given below are typical for CHEMREZ TECHNOLOGY / INSOLTECH / DIVERSYS SPECTRUM PRODUCTS, INC. / INTERPON /DUPONT applied to 0.8mm chromated aluminum panels.

**Colour:**

Wide range ex-stock or to customer's requirements

**Gloss Level:**

Full gloss 85%+ @$60^0$ Semi-gloss 50-60%+ @$60^0$ Matt 25-35%+ @$60^0$

**Film Thickness.**

65+/-15 microns

**Adhesion (DIN 53151/ISO 2409-2mm).**

Cross hatch rating GT 0 (100% adhesion)

**Impact Resistance (ASTM 2794).**

More than 20 in/lbs without film cracking. When tested at lower film thickness (I.e. 50-60 microns) it exceeds twice this value.

**Erichsen Cupping Test (DIN 53156/ISO 1520).**

Indentation depth in excess of 7.5mm without film cracking.

**Flexibility (DIN 53153/ISO 1519).**

Cylindrical mandrel bending test passes mandrel diameter

**Film Hardness (DIN 53153/ISO 2815).**

Indentation resistance according to Buchholz: 80-155.

**Mortar Resistance (ASTM C 207).**

After 24 hours at specified conditions mortar is easily removed from the coating, resulting neither in loss of adhesion nor in surface marring. (Mortar should preferably be removed as soon as possible if spilled on coated surfaces).

**Drilling, Milling and Sawing Test.**

No flaking of coating.

**Salt Spray Resistance (ASTM B 117-73).**

Should not have blistering or loss of adhesion after 1000 hours

**Resistance to Humid Atmospheres Containing $SO_2$.**

No blistering or loss of adhesion after 1000 hours continuous exposure at 100% RH and $40^0$C

**Resistance to Water (ISO/ 1621-1971)**

No blistering or loss of adhesion after 100 hours de-ionized (but not aerated) water at $40^0$C

**Weathering Resistance (FLORIDA TEST)**

No chalking, excellent gloss retention and colour stability after more than 1000 hours testing in Sun-test (17/3 cycle-back enamel temperature $40^0$C)

**UV Resistance (Xenon Test)**

Excellent colour stability

**Dry-heat Resistance**

2 hours at 150 degrees centigrade: Cross hatch Gt 0 (100% adhesion)

# SECTION 08130

# STEEL DOORS AND FRAMES

## PART 1 - GENERAL

### 1.1 WORK INCLUDED

A. Full flush steel doors.

B. Pressed steel frames and cased openings, including anchors and silencers.

### 1.2 QUALITY ASSURANCE

A. Quality Marking: Mark each door indicting compliance with applicable requirements of reference standards or provide certification indicating compliance.

### 1.3 REFERENCES

A. Steel Door Institute (SDI): SDI-100 - Recommended Specifications - Standard Steel Doors and frames.

B. National Association of Architectural Metal Manufacturers (NAAMM): Hollow Metal Technical and Design Manual.

C. Underwriters' Laboratories Inc. (UL) standards as applicable to fire rated doors and frames.

D. Product Standards Agency (PSA) - Certification

### 1.4 SUBMITTALS

A. Shop Drawings: Indicate general construction, configuration, jointing methods, reinforcements, anchorage methods, hardware locations, and locations of cut-outs.

B. Product Data: Submit manufacturers' literature.

### 1.5 DELIVERY, STORAGE AND HANDLING

A. Store doors and frames under cover, on minimum 100mm high wood blocking; avoid use of non-vented plastic or canvas shelters which could create humidity chamber.

B. Provide minimum 6mm space between stacked doors to allow air circulation.

## PART 2 – PRODUCTS

### 2.1 ACCEPTABLE MANUFACTURERS

A. Metro Tech
B. LEC Steel
C. Doortech
D. Or approved equal

### 2.2 MATERIALS

A. Doors: Hollow metal flush type, 45mm thick.

1.

2. Option: Conform to NAAM



Option: Conform to NAAM

**2.3 FABRICATION**

A. Conform to requirements of SDI or NAAMM.
B. Reinforce and prepare doors and frames to receive mortised and concealed finish hardware including cut-outs reinforcing drilling and tapping.

1. Refer to Section 08700 for hardware requirements.
2. Provide reinforcing plates to allow all surface applied hardware to be attached with machine screws. Through bolts and sex bolts will not be permitted.

a. Minimum Reinforcement Gage: 12 gage.

C. Frames and Cased Openings:

1. Welded Frames: Accurately form and cut mitred corners of welded type frames; weld on inside surfaces; grind welded joints to smooth uniform finish.

D. Door Silencers:

1. Place minimum of three single bumpers on single door frames and double door frames with removable mullions for doors up to and including 2250mm, add an additional silencer for each additional 750mm or fraction thereof; space equally along strike jambs.
2. Place minimum of two single bumpers on double door frames; place on frame heads.

E. Provide jamb anchors per SDI-100 and NAAMM; weld floor jamb anchors in place. Provide head anchors for doors over 1050mm wide.

F. Provide double doors tested and approved without astragals.

1. Provide astragals for double doors when required to meet UL requirements for Class A, 3-hour rated doors only.

a. Interior Units: Chemically treat surfaces and apply one coat of primer.

2. Exterior Exposed Units: Apply manufacturer's standard electrolytic zinc coating, but no less than Class C, minimum 0.15 oz/ft .

a. Phosphatize or surface treat after galvanizing, and apply one coat of primer.

**PART 3 - EXECUTION**

**3.1 INSTALLATION**

A. Install doors and frames in accordance with SDI-100 or NAAMM.

1. Install fire rated units in conformance with fire label requirements and NFPA 80.
2. Install frames in accordance with SDI-105 recommendations

**SECTION 08520**

**ALUMINUM WINDOWS**

## PART 1 - GENERAL

### 1.1 SUMMARY

A. Section Includes: Provide labor, materials, equipment and related items to furnish and install horizontal strip and punches windows as shown on Drawings and as specified. Provide items not specifically mentioned but necessary to complete the Work. Items include:

1. Extruded aluminum frames.
2. Extruded aluminum fixed and operable windows.
3. Anchorage to building structure.
4. Extruded aluminum interior head, jamb, and sill trim closures to concrete.
5. Operable windows.
6. Sealants within work of this Section and at boundaries with work of other sections.
7. Test mock-ups.
8. Field tests for resistance to water leakage.

B. Related Sections: Work specified in other sections, and requiring coordination with this Section, include:

1. 03300 - Cast-in-Place Concrete.
2. 08710 - Door Hardware.
3. 08800 - Glazing.

### 1.2 REFERENCES

A. Except as otherwise specified, comply with:

1. Aluminum Association Specifications for Aluminum Structures, Current Edition.
2. Aluminum Association Standards and Data, Current Edition.

### 1.3 DESIGN REQUIREMENTS

A. Contract Documents define design intent and performance requirements. Details show preferred profiles. Provide final design.

B. Unless otherwise defined by Contract Documents, appearance of exposed elements, including width and depth, shall be consistent throughout project.

C. Unless otherwise defined by Contract Documents, overall thickness of each glass type, and component thickness of multiple layer glass types, shall be consistent throughout project.

D. Provide anchor adjustment capability for full range of specified tolerances for building structure, but not less than one (1) inch (25 mm) in all directions.

E. Design wind pressures are as determined by wind tunnel tests. Wind pressures act perpendicular to flat surfaces, regardless of surface orientation. Wind pressures act perpendicular to tangents of curved surfaces. At corners and other changes in plane, both surfaces shall be assumed to experience inward pressure simultaneously, and outward pressure simultaneously. Design for simultaneous occurrence of inward pressure on one surface and outward pressure on adjoining surface is not required.

F. Anchors embedded in concrete shall be designated by the ultimate strength method. Cold formed stainless steel, but not stainless steel fasteners, shall be designated by the LRFD method. Stainless steel fasteners and other materials shall be designed by the allowable stress method. Stresses shall not exceed valued established by specifications listed under REFERENCES. For allowable stress design, stress shall not exceed yield stress. Where permitted by code, a 1/3 increase in allowable stress for wind or seismic load is acceptable, but not in combination with any reduction applied to combined loads. An allowable stress increase is not permitted for: metal plates or legs with

thickness of 0.5 inch (12.7 mm) or less bent about the weak axis; fasteners in drilled holes in concrete; fillet welds; partial penetration groove welds; stresses resulting from dead loads; structural silicone; glass.

G. Framing Members

1. Glass, sealant and interior finishes shall not be assumed to contribute to framing member strength, stiffness or lateral stability.

2. Compression flanges of flexural members may be assumed to receive effective lateral bracing only from (a) anchors to building structure and (b) horizontal glazing rails or interior trim which contact the compression flange. Points of contra-flexure shall not be regarded as lateral braces or as end points of an unbraced length; unbraced length shall be the distance between effective lateral braces.

H. Fasteners

1. General Requirements

a. Tension shall be taken as sum of direct tension plus tension due to prying.

b. Penetrations of a shim stack with total thickness "t" by a fastener with nominal diameter "d" shall require reductions in allowable tension and shear forces. Minimum reduction shall be zero percent for t=d, varying linearly to 100 percent for t-2d. Such reduction shall be in addition to any other reductions which may be applicable. An acceptable alternative method is to assume that shims provide no resistance to fastener bending, compute fastener bending stress with cross sectional properties based on root diameter, add bending stress to tension stress, and evaluate tension / shear interaction.

c. Unless otherwise specified, combined tension and shear shall be evaluated according to an interaction formula in which each term equals the square of actual force divided by the square of allowable force. Sum of terms shall but exceed 1.0.

2. Carbon Steel Bolts and Screws

a.

a. Tension shall not exceed 25 percent of ultimate tensile strength. Shear shall not exceed 25 percent of ultimate shear strength. Combined load shall be evaluated by an interaction formula, the terms of which wall be actual load divided by allowable load; sum of terms shall not exceed 1.0. Comply with manufacturer design rules if more stringent than specified. Apply reductions for spacing and edge distance.

b. Self drilling, self threading fasteners are not acceptable. Screws in plugs and powder actuated fasteners are not acceptable.

5. Allowable tension and shear for self-drilling steel fasteners in metal shall not exceed 30 percent of ultimate strengths.

6. Allowable stress for aluminum fasteners shall be determined according to Aluminum Association Specifications for Aluminum Structures.

I. Structural Silicone

1. Wind pressure shall be supported in tension or shear, but not tension and shear simultaneously.

2. Allowable tension stress or shear stress (but not combined tension and shear stress) shall not exceed 20 PSI (137.9 kPa) at design pressures and loads.

3. Structural silicone shall not support dead load.

J. System shall be designed to support its own weight in combination with other specified pressures and loads.

K. Movements

1. Provide movable joints to accommodate full range of manufacturing tolerance, field tolerance, thermal movement, wind, sway, seismic movement, floor sag, beam sag and column shortening. Design differential floor edge vertical movement between successive floors if 10+5+3mm=18mm).

2. Thermal component of joint movement shall be based on minimum material temperature increase of 85 Fahrenheit degrees (29.4 Centigrade degrees) and decrease of 40 Fahrenheit degrees (4.4 Centigrade Degrees) relative to nominal condition. Assume entire cross section has uniform temperature. For thermal design other than joint movement, design winter surface temperature is 73 Fahrenheit degrees (22.8 Centigrade degrees). Design summer surface temperature shall be at least 160 Fahrenheit degrees (71 Centigrade degrees). All components including adhesives and sealant shall be capable of withstanding without failure design temperatures with simultaneous specific loads.

3. At any floor, in-place displacement shall be assumed to occur while floor immediately above and below remain stationary. There shall be no failure or gross permanent distortion of anchors, frames or glass; gaskets and weatherstips shall not disengage; structural silicone shall not fail; weather seals shall not fail. Maximum in-plane displacement is to be confirmed by the Structural Engineer

L. Provide internal gutters and weep system to collect and drain water leakage and condensation to the exterior. Punches windows shall have an isolated gutter cavity at each glass perimeter, so that leakage is confide to and weeped from the opening of leakage origin. Horizontal ribbon windows shall have a continuous gutter at the glass head which either drains directly to exterior or directs leakage to the window sill.

M.. Glazing details shall permit glass replacement after initial construction, shall permit reuse of original gaskets, shall permit replacement glass of same nominal size as original glass, and shall not require cutting of framing members of removal of interior finishes. Vision glass in conventional frames shall be replaceable from interior. Spandrel glass shall be replaceable from exterior.

N. Snap engaged components shall be secured against migration, and shall not serve any primary structural function, such as retention of glass or panels. Snap engaged plastic components are not permitted, except as non-structural thermal improvement for interior trim.

**1.4 PERFORMANCE REQUIREMENTS**

A. Structural Criteria

1. At pressures and loads from zero to 150 percent of design values:

a. Framing member residual deflection after pressure or load is removed shall not exceed 1/1000 times distance between supports.

b. At anchors, framing member deflection relative to building structure shall not exceed 0.187 inch (4.7 mm), nor 0.125 inch (3.2 mm) after pressure or load removed.

c. Upon reversal of pressure or load direction, relative movement between two components that are fastened or clamped together shall not exceed 0.1877 inch (4.7 mm).

d. There shall be not disengagement, failure or gross permanent distortion of any component, including glass and gaskets.

2. At 100 percent of design pressures and loads:

a. Net deflection perpendicular to enclosure surface for framing members supporting glass shall not exceed: 1/75 times distance between supports for spans less than 156 inches (3962 mm);0.00427 times distance between supports plus 0.225 inch(5.72mm) for spans exceeding 156 inches;2/175 times cantilever length, not to exceed 0.375 in ch(9.5 mm).

b. Net deflection of framing members parallels to enclosure surface shall not exceed smallest of: 0.125 inch (3.2 mm) due to dead load; 0.125 inch (3.2 mm) change in opening size at any point;1/360 times distance between supports, not to exceed 0.375 inch (9.5 mm).

c. Net deflection parallel and perpendicular to enclosure surface for framing members at perimeter sealant joints shall not exceed smallest of : valued specified above; 50 percent of joint width; movement capacity of sealant.

d. Interior window sill shall not deflect more than 0.125 inch (3.2 mm) when subjected to a concentrated force of 200 pounds (888 N) at any point. Residual deflection after force is removed shall not exceed 0.062 inch (1.6 mm).

B. Structural Silicone

1. Ultimate tensile strength of structural silicone and the substrates to which it adheres for static loading at 160 degrees F (71 degrees C) shall be at least 60 PSI (414 kPa).

2. If structural silicone products other than those specified are proposed, perform tensile tests prior to fabrication of test mock-ups. Contractor is responsible for assembly of specimens and laboratory fees. Contractor shall reimburse Owner for fees and expenses of one observer to witness tests. Prior to scheduling tests, submit technical data for proposed silicones and request approval to proceed with tests.

a. Specimens shall consist of single line of silicone with dimensions 2.ox0.5x0.5 inch bonded to two glass rectangles. Fully cure specimens at room temperature. Immerse specimens in water for 7 days.

b. Test minimum of 3 specimens each at 75 +/- degrees F (24 +/-3 degrees C) and 160 +/-5 degrees F (71 +/-3 degrees C).Increase tensile stress in silicone to 60Psi in one minute or less maintain 60Psi for minimum of one minute.

c. Specimens shall not experience adhesive or cohesive failure, partial or total. All specimens must pass.

d. Submit laboratory report for approval.

3.

5.

by Architect for color and texture only. Compliance with other requirements is the responsibility of the Contractor.

2. Architect reserves right to require samples which show the fabrication techniques and workmanship for component parts.

**1.6 QUALIFICATIONS**

A. Aluminum Fabricator: Company specializing in fabrication of architectural aluminum extrusions with minimum 5 years experience.

B. Gasket Supplier: Company specializing in manufacture of products specified in this Section with minimum 10 years experience.

C. Sealant Supplier: Company specializing in manufacture of products specified in this Section with minimum 10 years experience.

9. If failures necessitate retest, pay the additional laboratory fees and other fees and expenses, including architect's and consultant's fees.

10. The name and qualifications of the test laboratory must be submitted for approval.

11. Mock-ups are subject to observation by Owner, Architect and their consultants during construction and testing. Provide minimum two week notice before beginning construction of mock-ups. Provide materials and personnel for prompt continuous construction mock-ups.

Delays in mock-up construction due to lack of materials or personnel could result in the Contractor being charged for fees and travel expenses of observers. Contractor shall coordinate chamber availability, shipping schedules and mock-up construction schedules directly with laboratory.

12. The testing laboratory shall not perform any of the following functions.

    a. Act as consultant to a contractor for this project.
    b. Modify Contract Documents requirements.
    c. Modify mock-up configuration.
    d. Dismantle mock-ups until notified that no further testing is required.

13. Undocumented tests are not permitted. All test results and all remedial work shall be documented in the laboratory report.

14. Mock-up design pressures are 75 (3.6 KPa) PSF inward and 84 (4.0 Kpa) PS F outward. Maximum test pressures are 113 (5.4 KPa) PSF inward and 125 (6.0 KPa) PSF outward.

B. Mock-up Tests

1. Testing Sequence

    a. Unlock, fully open, close and lock operable windows for a minimum of 50 cycles. Repeat cycling after any repairs or adjustments.
    b. Preload at 50 percent of inward design pressure.
    c. Air infiltration and exfiltration.
    d. Water infiltration under static pressure.
    e. Water infiltration under dynamic pressure.
    f. Structural test at 50 percent and 100 percent of inward design pressure.
    g. Structural tests at 50 percent and 100 percent of outward design pressure.
    h. Water infiltration under static pressure.
    i. Racking.
    j. Concentrated load tests of operable windows.

2. Air leakage test shall conform to ASTM E 283, modified to include measurement of exfiltration. Differential static test pressure shall be 6.24 PSF (299 Pa). Chamber leakage shall be accurately determined, not estimated. Air infiltration and exfiltration of fixed wall area shall not exceed 0.09 CFM per square foot (1.64 cubic meter per hour per square meter) of projected exterior surface, exclusive of windows and doors shall not exceed 0.30 CFM per foot (2.06 cubic meter per hour per meter) of crack length. Fixed panels of sliding windows and sliding doors are included in fixed wall area, and are not included in operator crack perimeter.

3. Water leakage is acceptable only if all of the following conditions are satisfied: (a) water is contained and drained to exterior; (b) there is no wetting of a surface that would be visible to building occupants; (c) there would be staining or other damage to completed building or its furnishings. This definition of water leakage governs over other definitions which may appear in referenced documents.

4. Where test sequence or test failure ngs. ThisThiace,



C. Warranty period for entire system shall be five (5) years from date of substantial completion. System warranty includes materials and labor.

D. Certain materials are required to have special warranties. Special warranties shall not limit or reduce requirements of system warranty. Special warranties may originate, in part or in whole, with manufacturers or fabricators and pass through Contractor to Owner. Warranties as written or interpreted by manufacturers or fabricators shall not limit or reduce special warranty requirements of this Section.

1. Reflective glass whose reflective coating cracks, peels or discolors shall be replaced at no charge (material only) for minimum ten (1) year period beginning on date of manufacture.

2. Spandrel glass whose pacifier cracks, peels, wrinkles, discolors, or stains shall be replaced at no charge for minimum five (5) year period beginning on date of manufacture.

3. Paint which cracks, peels, fades in excess of specified limits or chalks in excess of specified limits shall be replaced at no charge (material and labor) for minimum five (5) year period beginning on date of manufacture.

## PART 2 - PRODUCTS

### 2.1 MANUFACTURERS

A. Manufacturers: Subject to compliance with requirements, provide products of one of the following:

AustPhil
Arlo Aluminum

PROPOSED GALERIES TOWER MANILA

ASYA DESIGN PARTNER

[redacted]

H. Thermal Insulation

1. Insulate spandrels areas with USG Therma fiber or approved equal having 2 inch (50.8 mm) minimum nominal thickness with reinforced foil backing. Minimum R-value for insulation alone shall be 10.8 square feet - F - h/Btu (1.90 square meters - K/W).

2. Insulation shall be retained by aluminum or galvanized steel clips or straps, or integral pockets within window frames. Maximum spacing of clips and straps shall be 24 inches (610 mm). Welded or glued impaling pins are not acceptable. Maintain one i spang of clips and s

K. Attic Stock

1. Upon completion of construction, deliver to designated storage area spare materials for maintenance and repair. Materials shall conform to the same requirements as materials used for construction.

2. Provide fifty (50) exterior horizontal trim covers in lengths required to satisfy all project conditions.

**2.3 FABRICATION**

A. As far as practicable, fabrication shall be done in the shop.

B. Exposed work shall be carefully matched to produce continuity of line and design. Joints in exposed work, unless otherwise shown or specified, shall be accurately fitted and rigidly secured.

C.

G. Field touch-up of painted aluminum is permitted only with written permission from the Architect. Unless touch-up is authorized, replace damaged material with new material.

H. Provide colors as selected by Architect.

I. Warranty

1. Color changes shall not exceed 5E NBS units as defined by ASTM D 2244 for specified special warranty period.

2. Chalking shall not exceed a number 8 rating for colors and a number 6 rating for whites as defined by ASTM D 659 for specified warranty period.

3. Paint film shall not crack or peel during specified warranty period.

**2.6 ALUMINUM FINISH AT STRUCTURAL**

A. Mill finish is not acceptable at structural silicone bonding surfaces.

B. Aluminum surface to which structural silicone will be adhered shall have a finish which demonstrates by the ability to satisfy specified requirements. Subject to testing, acceptable finishes are as follows.

**2.7 STEEL FINISHES**

A. Cold formed carbon steel with 0.168 inch (4.27 mm) or less shall be hot dip galvanized to met or exceed requirements of classification G 90 of ASTM A 525.

B. Cold formed carbon steel with thickness exceeding 0.168 inch (4.27 mm) and hot rolled steel shall be prime painted in conformance with GSA Specification TT-P-645, or hot dip galvanized in conformance with ASTM A 123.

**2.8 SOURCE QUALITY CONTROL**

A. Test shop applied structural silicone by applying outward design pressure for at least 10 seconds. Test minimum 5 percent of units, using random selection throughout production. Record date of test, result and identification marking of unit tested. Mark each unit so that structural silicone batch numbers and date of application can be traced. Submit test date for information only.

B. Adhesion, Compatibility and Stain Tests

1. Provide to sealant manufacturers samples of all substrates which are in contact with sealant, regardless of weather adhesion must be received.

2. For substrates which must support adhesion, submit for record only sealant manufacturer's reports of adhesion tests conducted in accordance with ASTM C 794. Metal screen is an acceptable substitute for airplane cloth. Report shall specifically acknowledge suitability for structural silicone application where applicable.

3. For substrates which are in contact with sealant, submit for record only sealant manufacturer's reports of compatibility tests for sealants and primers conducted in accordance with ASTM C 1087.

4. For concrete, and other porous materials submit for record only sealant manufacturer's reports of stain test performed in accordance with ASTM C 1248.

C. Inspect materials and workmanship to assure compliance with Contract Documents. Provide access to

## 3.1 EXAMINATION

A. Verify that structure and site conditions are ready to receive work of this Section.

B. Establish lines and elevations.

## 3.2 INSTALLATION

A. Install materials in accordance with approved drawings. Provide labor, material, equipment and supervision necessary for complete installation.

B. Tolerances

1. Provide anchor adjustment capability for full range of specified tolerances for building structure, but not less than one inch (25 mm) in all directions.

2. Work of this Section shall be within the following tolerances.

3. Deviation from plumb, level or dimensioned angle shall not exceed 0.125 inch per 10 feet (3.2 m

scaffold, hose, water supply and manpower to perform at least four successful tests, plus any unsuccessful tests. Water testing shall be conducted early in construction schedule. Construction sequence shall include provisions for timely completion of test areas. Remedial measures shall maintain standards of quality and durability and are subject to approval.

B. Periodically test sealants in place for adhesion, using methods recommended by sealant manufacturer. Promptly replace any sealant which does not adhere or fails to cure.

C. Test internal gutters by temporarily plugging weep holes and filling with water. After minimum of fifteen minutes, inspect for water leakage. Correct deficiencies and retest until successful tests are achieved. Remove weep hole plugs.

**3.4 ADJUSTMENT**

A. Adjusting operating windows for proper fit within fixed frame.

B. Adjust weatherstips for continuous contact and seal in closed position.

C. Adjust hardware for proper operation.

**3.5 PROTECTION AND CLEANING**

A. Protect materials against damage and contamination. Clean surfaces as required to remove corrosive substances, during and at conclusion of construction.

B. Periodically remove from the site debris, excess materials and unused tools and equipment resulting from this work. At conclusion of construction, leave premises in clean condition.

C. Clean aluminum surfaces promptly after installation of windows. Exercise care to avoid damage to protective coatings and finishes. Remove excess glazing and sealant compounds, dirt, and other substances. Lubricate hardware and other moving parts.

D. Clean glass of pre-glazed units promptly after installation of windows. Comply with requirements of the "Glazing" Section for cleaning and maintenance.

E. Initiate and maintain protection and other precautions required through the remainder of the construction period to ensure that, except for normal weathering, window units will be free of damage or deterioration at the time of Substantial Completion.

**END OF SECTION**

**SECTION 08330**

**OVERHEAD COILING GRILLES**

## PART 1 - GENERAL

### 1.1 SUMMARY

A. Extent of overhead coiling grilles is shown on drawings.

B. Types of overhead coiling grilles include the following :

1. Overhead coiling stainless steel grilles at parking garage entrances and exits electronically operated.

C. Provide complete operating grille assemblies including curtains, guides, counterbalance mechanisms, hardware, operators and installation accessories, as indicated.

### 1.2 SUBMITTALS

A. Product Data: Submit manufacturer's product data, roughing

[redacted]

mounted on counterbalance shaft, and disconnect- release for manual operation. Provide motor and drive assembly of horsepower and design as determined by manufacturer for size of unit required.

E. Electric Motors: Provide high-starting torque, reversible, constant duty, Class A insulated electric motors with overload protection, sized to move grille in either direction, from any position, at not less than 200 mm nor more than 300 mm per second.

1. Coordinate wiring requirements and current characteristics of motors with building electrical system.

2. Provide open-drip-proof type motor, and controller with NEMA Type I enclosure.

F. Remote Control Station: Provide momentary-contact, 3-button control station with push button controls labeled "open", "close" and "stop".

1. Provide interior units, full-guarded type, surface-mounted, heavy-duty, with general purpose NEMA Type l enclosure.

2. Provide exterior units, full-guarded, standard duty, surface- mounted, weatherproof NEMA Type 4, enclosure, key operated.

G. Automatic Reverse Control: Provide each grille with automatic safety switch, extending full width of bottom, and located within neoprene or rubber astragal mounted to bottom rail. Contact with switch before fully closing will immediately stop downward travel and reverse direction to fully opened position. Connect to control circuit through retracting safety cord and reel or self-coiling cable.

1. Provide electrically actuated automatic bottom bar.

**2.5 APPROVED MANUFACTURERS**

1. Metro Shutter
2. Lec Steel
3. Doortech
4. Or approved equal

**SECTION 08200**

**FLUSH PVC DOORS**

**PART 1 – GENERAL**

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of Contract, including General and Supplementary Conditions and other Division 1 Specification sections, apply to work of this section.

1.2 SUMMARY

A. Extent and location of each type of PVC door is indicated on drawings and in schedules.

B. Shop priming of PVC doors is included in this section.

C. Factory finishing of PVC doors is including in this section.

D. Factory prefitting to frames and factory-premaching for hardware for PVC doors is including in this section.

E. PVC flush door with louver including furnishing and installation, are specified under this section.

1.3 SUBMITTALS

A. Product Data

C. Samples

1. Submit samples, 300 mm. square or as indicated, for the following

a.

4. Replace or refinish doors where contractor's work contributed to rejection or to voiding of manufacturer's warranty.

**PART 2 – PRODUCTS**

2.1 MANUFACTURERS

A. Available Manufacturers : Subject to compliance with requirements, manufacturer's offering doors which may be incorporated in the work include, but are not limited to the following :

a. Polydoor Industrial Sales
b. Upson Industries Corp.
c. Emeral Vinyl Corp
d. Or Approve equal

B. LOUVERS AND LIGHT FRAMES

1. PVC Louvers: Door manufacturer's standard PVC louvers, unless otherwise indicated, and of size indicated.

**PART 3 – EXECUTION**

3.1 EXAMINATION

A. Examine installed door frames prior to hanging door :

1. Verify that frames comply with indicated requirements for type, size, location, and swing characteristics and have been installed with plumb jambs and level heads.

2. Reject doors with defects upon delivery.

B. Do not proceed with installation until unsatisfactory conditions have been corrected.

3.2 INSTALLATION

A. Hardware: For installation see Division 8 "Finish Hardware" section of these specifications.

B. Manufacturer's Instruction: Install PVC doors to comply with manufacturer's instructions and of referenced AWI standard and as indicated.

C. Job-

# SECTION 08410

# ALUMINUM ENTRANCES AND COMMERCIAL STALLFRONTS/RESTAURANTS

## PART 1 - GENERAL

### 1.1 SUMMARY

A. Related Sections: The following sections contain requirements that relate to this Section:

1. Glazing requirements for aluminum entrances and storefront, including entrances specified to be factory glazed, are included in Division 8 Section "Glazing".

2. Lock cylinders are included in Division 8 Section "Finish Hardware".

### 1.2 SYSTEM PERFORMANCE REQUIREMENTS

A. General: Provide aluminum en

## 1.3 SUBMITTALS

1. Product data for each aluminum entrance and storefront system required, including:

    a. Manufacturer's standard details and fabrication methods
    b. Data on finishing, hardware and accessories
    c. Recommendations for maintenance and cleaning of exterior surfaces

2. Shop drawings for each aluminium entrance and storefront system required, including:

    a. Layout and installation details, including relationship to adjacent work.
    b. Elevations at 1:50 scale.
    c. Detail sections of typical composite members.
    d. Anchors and reinforcement
    e. Hardwired mounting heights.
    f. Provisions for expansion and contraction.
    g. Glazing details.

3. Hardware Schedule: Submit complete hardward schedule organised into sets based on hardware specified. Coordinate hardware with doors frames, and related work to ensure proper size, thickness, hand, function, and finish. Include item name, name of the manufacturer and complete designations of every item required for each door opening.

4. Samples for Initial Color Selection: Submit pairs of samples of each specified color and finish on 12-inch-long sections of extrusions or formed shapes. Where normal color variations are anticipated, include 2 or more units in each set of samples indicating extreme limits of color variations.

5. Samples for Verification Purposes: The Architect reserves the right to require additional samples, that show fabrication techniques and workmanship, and design of hardware and accessories.

6. Test Reports: Provide certified test reports from a qualified independent testing laboratory showing that aluminum entrance and storefront system have been tested in accordance with specified test procedures and comply with performance characteristic indicated.

## 1.4 QUALITY ASSURANCE

A. Installer Qualifications: Engage an experienced Installer who has completed installations of aluminum storefront and entrances similar in design and extent to those required for the project and whose work has resulted in construction with a record of successful in-service performance.

B. Fabricator Qualifications: Provide aluminum entrances and storefront systems fabricated by a firm experienced in producing systems that are similar to those indicated for this Project, and that have a record of successful in-service performance. The fabricator shall have sufficient production capacity to produce components required without causing delay in progress of the work.

C. Single Source Responsibility: Obtain aluminum entrance and storefront system from one source and from a single manufacturer.

D. Design Criteria: The drawings indicate the size, profile, and dimensional requirement of aluminum entrance and storefront work required and are based on the specific types and models indicated. Aluminum entrance and storefront by other manufacturers may be considered, provided deviations in dimensions and profiles are minor and do not change the design concept as judged by the Architect. The burden of proof of equality is on the proposer.

## 1.5 DELIVERY, STORAGE AND HANDLING

A. Deliver aluminum entrance and storefront components in the manufacturer's original protective packaging.

B. Store aluminium components in a clean dry location away form uncured masonry or concrete. Cover components with waterproof paper, tarpaulin or polyethylene sheeting in a manner to permit circulation of air.
    1. Stack framing components in a manner that will prevent bending and avoid significant or permanent damage.





H. Brackets and Reinforcements: Provide high-strength aluminum brackets and reinforcements; where use of aluminum is not feasible provide nonmagnetic stainless steel or hot-dip galvanised steel complying with ASTM A 123.

I. Concrete and Masonry Inserts: Provide cast iron, malleable iron, or hot-dip galvanised steel inserts comply with ASTM A 123.

J. Compression Weather-stripping: Manufacturer's standard replaceable compressible weather-stripping gaskets of molded neoprene complying with ASTM D 2000 or molded PVC complying with ASTM D 2287.

K. Sliding Weather-stripping: Manufacturer's standard replaceable weatherstipping of wool, polypropylene, or nylon woven pile, w/ nylon fabric or aluminum strip backing, complying w/ AAMA 701.2.

**2.2**

Comply with the manufacturer's recommendations for closer size, depending on door size, exposure to weather and anticipated frequency of use. Include the following:

a. Automatichold-open

8. Surface-Mounted Overhead Closers: Modern type with cover, for hinge side installation. Comply with ANSI A156.4, Grade 1. Comply with manufacturer's recommendations for closer size, depending on closer size, depending on door size, exposure to weather & anticipated frequency of use. Include the following:

   a. Hold-open arm
   b. Delayed-action closing.

9. Concealed Overhead Holders: Adjustable, shock-absorbing type concealed overhead holders; comply with ANSI AS 156.8.

10. Exposed Overhead Holders: Streamlined type exposed overhead holders for use on single-acting doors; comply with ANSI A 156.8.

11. Door-mounted Holder: Flip-up type holder with rubber shoe, for mounting on lower rail; comply with ANSI A156.16, Grade 1.

12. Door Stop: Floor-or wall-mounted doors stop, as appropriate, with integral rubber bumper; comply with ANSI A156.16, Grade 1.

13. Cylinders are supplied under another Division 8 Section for keying into the building system.

14. Cylinders: Mortise type, 6-pin tumbler, inside cylinder units with cast aluminum face; comply with ANSI A156.5, Grade 1.

15. Thumb-Turns: Inside thumb-turn cylinders of cast aluminum alloy.

16. Deadlocks: Mortised maximum security deadlock, with minimum 25 mm long pivoted bolt and stainless steel strike box; comply with ANSI A156.5, Grade 1.

17. Deadlatches: Mortise type detach with stainless steel strike box; comply with ANSI A 156.5, Grade
18. Lever Handles: Cast aluminum alloy inside knob handles units.

19. Panic Hardware: Concealed-rod type panic exit devices activated by full-width crash bar. Comply with UL 305.



[redacted]





PROPOSED GALERIES TOWER MANILA



D. American National Standards Institute (ANSI): A117.1-86 - Specifications for making buildings and facilities accessible to and usable by physically handicapped people. A.156.18 - Materials and Finishes.

E. Door and Hardware Institute (DHI):

1. Keying - Procedures, Systems and Nomenclature - 1978.

2. Abbreviations and Symbols - 1983.

3. Recommended Locations for Builders Hardware for Custom Steel Doors and Frames - 1976.

4.

supplier shall ship to them such hardware via prepaid freight in sufficient time to prevent any delay in the execution of their work.

**1.5 DELIVERY, STORAGE AND HANDLING:**

A. All items of hardware to be delivered to the job site shall be completely packaged with all necessary screws, bolts, miscellaneous parts, instructions and where necessary installation templates for manufacturer's suggested installation. They are to be clearly labelled so as to conveniently identify them and their intended location in the building.

B. Finish hardware shall be delivered to the General Contractor by the hardware supplier. Direct factory shipments (drop shipments) to the job site are not acceptable. Representatives of the General Contractor and the hardware supplier shall jointly inventory the hardware. Items damaged in shipment shall be replaced promptly and with proper material without additional cost to the General Contractor. All hardware shall be handled in a manner to eliminate marring, scratching or damage.

C. A representative of the General Contractor shall receive the hardware when delivered at the job site. A dry, locked storage space complete with shelving, shall be set aside for the purpose of unpacking, sorting out, checking and storage. Control the handling and installation of hardware items, whether immediately replaceable or not, so completion of the work will not be delayed by losses before or after installation.

**1.6 WARRANTIES:**

A. Warranties shall be furnished in accordance with Division 1.

B. All hardware shall be warranted by the Manufacturer to be free from defects in materials and workmanship wa.

4. A list of acceptable manufacturers are as follows; All locks and latches are to be supplied from the same manufacturer for toilet & typical door.

   A.) Hafele B.) Goodlock C.)or approved equal

Distributed by :

   1.) Main Harware 2.) Goldbond Marketing 3.) Philman Comm'l 4.) Grand Nova

5. Panic devices are described as "PA" in the schedules and shall be the product of Adams Rite,Ada Duprin, Sargent, Monarch. Grade and function as listed at least equal to Von Duprin series 9975K-FX (MK Cylinder) for approval.

6. Gear shall be selected from manufacturers standard range to fully suit type of door specified for the opening and to generally comply with the details provided. The contractor shall co-

This is a co-ordination responsibility for the contractor where doors may be listed otherwise, and is only subject to final approval on submission of contractors door schedules for purchasing.

**C. DOOR CLOSERS:**

1. Closer types are described in the schedules in the following manner. Descriptions are given adjacent.

   a) Room-side :"Exposed overhead" closer on room side of door opening serving that room.
   b) Out-side :"Exposed overhead" closer on out side of door opening serving that room.
   c) C.O.H.:Concealed Overhead Closer. Fully mortised into head frame.
   d) Jamb :Concealed Jamb Closer. fully mortised in door or jamb frame.
   e) Floor :Concealed Floor Closer. Fully recessed flush with finished floor.

2. Sizes and models for all types of closers shall be determined by the manufacturers written recommendations for door and frame sizes, materials, finishes, and location, Architects approval will be subject to contractors final fully co-ordinated proposal prior to ordering of any items including doors, frames, or any materials which may affect the final selection of closer types.

3. Exposed overhead closures for standard doors shall be the product of the following or approved equal. All closers of this type shall be non-handed.

   a) Dorma TS83 series.
   b) LCN 1460 series.
   c) Modric 9156A/9151A sereis.
   d) Norton 8400 series.

   Closers shall receive full covers for satin or polished stainless steel finish, or polished chrome where specified.

4. Concealed Overhead Closers (C.O.H.)for all he/she toilets/fire escape shall be the product of the following or approved equal.

   a) Dorma RTS 88 series.
   b) LCN 2010 series.

   Concealed overhead closers shall be head frame recessed type with arm completely concealed when door closes.

**D. GASKETING:**

1. Gasketing is described in the schedule sheets as being one of the following;

   a) Airtight (AIR) - Pemko S2/S3
   b) Fireproof (FIRE) - Pemko S88/Hager 726S
   c) Smokeproof (SMOKE) - Pemko S88/Hager 726S
   d) Soundproof (SOUND) - Pemko 320AN
   e) Weatherproof (WEATHER) - Pemko S2/S3

2. Gasketing shall be the products of Pemko Hager, Zero, Stanley, Reese, .

3. Gasketing requirements shall be co-ordinated by the contractor to comply with thresholds where required and to comply with door ratings and other requirements of the specification. Generally, where a particular manufacturer has been selected for gasketing materials/systems then the same manufacturer should be used where thresholds or saddles are required.

4. All proposals by the contractor shall be in accordance with the written recommendations of the manufacturer for compliance with all requirements, including compatibility with thresholds, jamb frames and gasketing.

5.

6. Except for plant and non public areas, astragal or meeting stile gasketing shall be rebated into the stiles as per Pemko 369 AS W/S2 gasket.

7. All door frames shall be furnished with "Silencers" in grey line moulded rubber equal to "Hafele" door silencer or equivalent for hollow metal frames and "Hafele" door silencer or equivalent for wood frames. Furnish three (3) silencers per single door and four (4) silencers for double doors.

**E. ASTRAGALS:**

1. Astragals for plant or back of house double doorsets shall be formed using flat surface astragals on "V" bevel junctions between meeting stiles unless otherwise noted. Typical details are included in the detail book under section A.30.

2. Astragals or meeting stile conditions for doors in public areas, front of house areas, or where specified shall be furnished with bullnose meeting stiles. Gaskets where required in such doors shall be fully recessed and adjustable as per Pemko Mortice Mount 354 series, or equal to suit gasketing requirements.

3. Where rebated astragals are shown on door details, and flush bolts are specified, flush botls shall be recessed fitted flush with the internal face of the door, or flush with the door face opposite public view.

4. Astragals, or meeting stile conditions, for plant or other doors accessable to public view shall be formed using paralled bevel door stiles. Gaskets where required in such doors shall be fully recessed and adjustable as per Pemko Mortice Mount 354 series or other to suit gasketing requirements.

5. All astragals where gasketing is specified shall be in accordance with the manufacturers written recommendations. It is the contractors sole responsibility to ensure that astragal proposals are fully co-ordinated with gasketing proposals for jambs, heads and thresholds, and that ratings for fire, smoke, sound etc are met with their proposal.

**F. CO-ORDINATORS:**

1. Co-ordinators shall be the product of Dorma Door Control, LCN.

**G. THRESHOLDS:**

1. Thresholds are described in the schedule sheets as being one of the following;

   a) Airtight (AIR)
   b) Fireproof (FIRE)
   c) Smokeproof (SMOKE)
   d) Soundproof (SOUND)
   e) Weatherproof (WEATHER)

2. Threshold proposals including gaskets and saddles shall be co-ordinated with gasketing requirements and shall form part of the contractors proposal complying with requirements of this part, among others, of the specifications.

3. Threshold types are indicated at the front end of the Door Schedule and also in the External and Internal Door Details sections of the detail book; section A.30.





**K. RESTRAINING HOOKS:**

1. Restraining hooks shall be the product of Glynn-Johnson/Modric Builders/HB Ives/Hager-Automatic wall type holders series GJ-4W-45A with polished chrome finish.

L. Miscellaneous Door Hardware: Provide Plates, trim, letter box, viewers, knockers, bells, and similar units as indicated.

M. Weatherstripping: Provide type, size, and profile indicated, continuous at head and jamb edges of each exterior door opening. Provide non-corrosive fasteners.

**2.3 FINISHES, KEYING AND FASTENERS:**

A. Base metals: Produce hardware units of basic metal and forming method indicated, using manufacturers standard metal alloy composition, temper and hardness, but in no case of lesser quality than specified or inferred by use of a particular manufacturer's number, style or grade or as established by appropriate referenced specification listed herein.

B. Finishes: Unless otherwise specified all exposed hardware finishes shall be in bright polished chrome stainless steel finish. Finishes shall conform to the quality of finish including thickness of plating or coating (if any), composition, hardness and other qualities complying with manufacturer's standards, but in no case less than the standards established by ANSI A156.18 (BHMA 1301) or Federal Specifications FF-H-111C as applicable.

C. All service areas with exposed hardware shall be satin finish stainless steel. Panics shall have satin finish extruded aluminium cross bars with satin finish trim and satin finish stainless push pads.

D. Keying: Supplier to meet with Owner to determine keying requirements and obtain final instructions.

E. Provide the type of system required: (master, grand master, great grand master). Nomenclature and layout to be consistent with DHI "keying - Procedures, Systems and Nomenclature."

F. Provide keys of nickel silver only. Furnish 4 change keys per lock (stamped with key change number), 6 master keys per set, 6 grand master keys (per set).

G. All locks to be construction master keyed. Equip locks with manufacturer's special 6 pin tumbler cylinders, which permit voiding construction keys without removal of the cylinder. Furnish 20 construction keys.

H. Furnish a key control cabinet equal to Key Control Systems, Inc. with permanent loan register and hook capacity for each lock specified herein plus 200%.

I. Fasteners: Manufacture hardware to conform to published templates, generally prepared for machine screw installation. Do not provide hardware, which has been prepared for self-tapping or sheet metal screws except as specifically indicated.

J.

are not acceptable. Provide fasteners which are

C. After the Owner has occupied the buildings, manufacturer's representatives of Closers, panics, locks and other operating hardware as deemed necessary shall visit the site and make adjustments to the equipment to ensure proper functioning. This inspection and adjustment shall be made after final adjustment of the heating and ventilating equipment.

D. Instruct Owner's personnel in proper adjustment and maintenance of hardware and hardware finishes,

# SECTION 08810

# GLAZING

## PART 1 - GENERAL

### 1.1 SUMMARY

A. System Performance Requirements: Provide glazing systems capable of withstanding normal thermal movement, wind loading, and impact loading, without failure including loss or glass breakage attributable to: defective manufacture, fabrication, and installation; deterioration of glazing materials; and other defects in construction.

1. Glass Design: Provide glass lites in the thickness and strengths ( tempered glass) to meet or exceed the following criteria based on analysis of Project loads and in-service conditions:

a. Minimum glass thickness, nominally. (refer to plan/verify wind cladding requirement)

2. Refer to Wind Tunnel Test results recommendation.

### 1.2 SUBMITTALS

A. Product data for each glass product and glazing material indicated.

B. Samples for verification purposes of 300 mm square samples of each type of glass indicated except for clear monolithic glass products, and 300 mm long samples of each color required (except black) for each type of sealant or gasket exposed to view. Install sealant or gasket sample between two strips of material representative in color of the adjoining framing system.

C. Product certificates signed by glazing materials manufacturers certifying that their products comply with specified requirements.

1. Separate certifications are not required for glazing materials bearing manufacturer's permanent labels designating type and thickness of glass, provided labels represent a quality control program of a recognized certification agency or independent testing agency acceptable to authorities having jurisdiction.

D. Compatibility and adhesion test reports from sealant manufacturer indicating that glazing materials were tested for compatibility and adhesion with glazing sealants. Include sealant manufacturer's interpretation of test results relative to sealant performance and recommendations for primers and substrate preparation needed for adhesion.

E. Product test reports for each type of glazing sealant and gasket indicated, evidencing compliance with requirements specified.

F. Maintenance data for glass and other glazing materials to include in Operating and Maintenance Manual specified in Division 1.

### 1.3 QUALITY ASSURANCE

A. Glazing Publications: Comply with published recommendations of glass product manufacturers, "FGMA Glazing Manual," and publications of AAMA, LSGA, and SIGMA as applicable to products indicated, except where more stringent requirements are indicated.

B. Fire-Resistive Glazing Products: Products identical to those tested per ASTM E 152 for doors and ASTM E 163 for window assemblies both labelled and listed by UL or another testing and inspecting agency acceptable to authorities having jurisdiction.

C. Section Includes: Glass Visual Mock-up

D. Referenced:

1. ANSI Z97.1-1984 Performance Specifications and Methods of Test for Safety Glazing Materials.
2. ASTM C1036-91 Specification for Flat Glass.
3. ASTM C 1048-92 Specification for tempered glass
4. GSA-PBS Guide Specification PBS4-

about a horizontal axis at mid-height of the glass. Provide production thickness, tint, coatings and heat treatment.

2. Provide zebra board with diagonal stripes of alternating black and white color. Width of stripes shall be 4 to 6 inches (10 to 15 cm) and shall be uniform. Provide unobstructed viewing area of at least 50 feet (15m) between glass and zebra board. Bottom edge of zebra board shall be level with bottom edge of glass. Dimensions of zebra board shall be at least 8 feet wide by 8 feet high (2.4 m by 2.4 m). Maintain viewing area, samples and zebra board in unobstructed condition throughout construction.

3. Owner and Architect shall inspect glass samples for flatness, as evidenced by appearance of reflected image. If reflected image is acceptable, glass samples shall be retained as an acceptance standard for production material. If reflected image is unacceptable, provide additional samples for inspection until acceptable reflected image is obtained.
4. Owner and Architect shall inspect glass samples for appearance match of vision and spandrel. If match is acceptable, glass samples shall be retained as an acceptance standard for production material. If match is unacceptable, provide additional samples until acceptable appearance match is achieved.

J. Warranty

1. Provide written warranty agreeing to replace defective materials during the warranty period. Defective materials include but are not limited to:

   a. Glass breakage: secondary breakage caused by falling glass; spontaneous breakage of heat treated glass.
   b. Cracking, peeling, or discoloration of glass reflective coating.

2. Warranty does not include damage caused by vandalism, or natural conditions exceeding the performance requirements.

3. Warranty period for entire system shall be five (5) years from date of substantial completion. System warranty includes materials and labor.

4. Certain materials are required to have special warranties. Special warranties shall not limit or reduce requirements of system warranty. Special warranties may originate, in part or in whole, with manufacturers or fabricators and pass though Contractor to Owner. Warranties as written or interpreted by manufacturers or fabricators shall not limit or reduce special warranty requirements of this Section.

   a. Spandrel glass whose opacifier cracks, peels, wrinkles, discolors, or stain shall be replaced at no charge for minimum (5) year period beginning on date of manufacture.

**PART 2 - PRODUCTS**

**2.1 PRODUCTS**

A. Available Products: Subject to compliance with requirements, products that may be incorporated in the Work include, but are not limited to, the products specified in Product Data Sheets at the end of this Section.

Use RAGC (Republic Asahi Glass Corp.) or approved equal

B. Glass:

1. Glass shall conform, as a minimum, to the following standards.

   a. Heat-treated flat glass shall conform to ASTM C 1048, except that surface compression of heat strengthened glass shall be 3500 to 8500 PSI (24.1 to 58.6 N/mm2).

b. Provide tinted tempered glass as indicated on plans & safety requirements as specified.

c. Color : Verify approval by Architect.

d. Thickness: Verify thickness indicated on plan or higher requirements as stated on wind load calculation (By Supplier). No cost implication to owner in case calculation requires thicker glass over specification indicated on plan.

2. Provide safety glass at the following locations.

a. Doors.

b. Fixed and operable glazing with vertical edge within 24 inches (610 mm) of a door in closed position and with bottoTQQga-4(i)-4(r679993 T5d-8(m)-8(≥29(›)-160 0.12 172.199997 6aeea 0.12 424.199 792

specification. Installed heat-treated glass which experience spontaneous breakage shall be replaced (material and labor) under warranty provisions.

8. Spandrel glass shall be opacified with plastic film. Plastic film is not acceptable where glass visible light transmittance exceeds 30 percent.

9. Monolithic spandrel glass shall have a safety backing conforming to fallout resistance requirements of GSA-PBS Guide Specification PBS4-0885 and FCGS 08810.

10. Plastic Film Opacifier

    a. Provide polyester with minimum nominal thickness of 0.003 inch (0.0762 mm). Film shall be pigmented and have a black color.

    b. Bonding surface shall be completely coated with solvent based adhesive.

    c. Film shall be a safety backing for fallout resistance.

11. Vision glass shall be 6 mm minimum thickness heat strengthened glass with coating as selected by the Architect.

12. Spandrel glass shall be 6 mm minimum thickness opacified heat strengthened glass with coating as selected by the Architect.

13. Glazing System

    a. Gasket system shall consist of a dense gasket against one glass face, and a sponge gasket against the other glass face. Refer to Glazing Materials and Glazing regarding injection molded corners and sealing of gasket corner joints.

    b. Structural silicone system shall consist of structural silicone at interior glass face and an exterior silicone weather seal. At glass edges not supported by structural silicone, provide gasket system; a recessed backer and silicone seal may replace either or both gaskets.

14. Gasket and Weatherstrips Except at Structural Silicone.

    1. Gaskets and Weatherstrips Except at Structural Silicone

        a. Sponge gasket shall be extruded black neoprene w/ hardness of 40+/-5durometer Shore A & conforming to ASTMC509. Design sponge gaskets to provide 20%to35%compression.

        b. Dense gaskets shall be black extrusions with Shore A hardness of 75 +/-5 for hollow profiles and 60 +/-5 for solid profiles, and conforming to ASTM C 864. Outdoor gaskets shall be neoprene or Santoprene. Indoor gaskets shall be neoprene, Santoprene or EPDM. Where indoor and outdoor gaskets are reversible for re-glazing, EPDM shall not be used for either gasket.
        c. Injection moulds corners of gaskets where compatible with installation procedures.

        d. Gaskets shall be designed to produce glass edge pressure of 4 to 10 pounds per linear inch. (0.70 to 1.75 N/mm).

    2. Glazing gaskets, sealant backers within glazing pockets, and continuous glass spacer pads

for structural silicone, shall have a continuous spline or a continuous groove which engages a matching groove or leg on the aluminum frame.

4. Norton V2100 Thermalbond Tape is acceptable as a glass spacer pad when used in

1. Upon completion of construction, deliver to a designated storage area spare glass for replacement.

   a. Provide vision and spandrel glass in sizes as selected by the Architect equal to 0.5 percent of the area of glass on the project.

**2.2 DELIVERY, STORAGE, AND HANDLING**

9.

# SECTION 08850

# SEALERS FOR GLAZING

## PART 1 - GENERAL

### 1.1 SUMMARY

A. Sealers are specified in this Section by requirements for installed performance of Sealers. Proprietary sources of Sealers identified in this Section are intended to represent products and sources of known quality and reliability, as a basis for Contractor's selection and design, subject to submittals, testing, and approval. Contractor, and Manufacturers of Sealers proposed by Contractor shall together complete the installed technical design of Sealers for Glazing, to deliver performance as specified. Scope of Sealers is summarised as follows:

1. Sealers for glass, at locations of glass installed metal frames.

B. Cross Reference: Sealers for Glazing, are supplied and installed in other Sections, by cross reference to this Section, as follows:

1. Sealers for glass-to-glass joints
2. Sealers for glass-to-frame joints

### 1.2 REFERENCE STANDARDS

A. Quality standards are identified in this Section by reference to published standards as follows:

AAMA A 804.1 .....EXTRUDED TAPE FOR GLAZING
ASTM C509 .....CELLULAR GASKETS
ASTM C542 .....LOCK STRIP GASKETS
ASTM C716 .....INSTALLING OF GASKETS
ASTM C719 .....TESTING OF SEALANTS
ASTM C864 .....COMPRESSION SEAL GASKETS
ASTM C920 .....PROPERTIES OF SEALANTS
ASTM D2000 .....NEOPRENE GLAZING GASKETS
ASTM D412 ..... TESTING OF SEALANTS

### 1.3 QUALITY ASSURANCE

A. Reference Standard: Comply with recommendations of Flat Glass Marketing Association (FGMA) "Glazing Manual" and "Sealant Manual" except as specified.

B. Single Source: For each installed joint condition, use only the products of a single source of manufacture, for compatibility and single source of responsibility.

### 1.4 TESTING

A. Compatibility Testing: Prior to fabrication of glass for installation in trial portions of construction, test glass and Sealers for compatibility and adhesion.

1. Submit samples to sealant manufacturer for testing.

2. Samples shall consist of all glass, gaskets, glazing accessories, and glass framing members

including one sample of substrates for compatibility testing. Substrates means gaskets, setting blocks, and spacers.

5. Schedule sufficient time for testing and analysis of results, including time for re-testing where products are found to be partially or wholly incompatible. Sufficient time means so as to prevent delay in the progress of construction.

6.

suite proposed context of use. Adaptations of stock designs shall be made available at no additional cost to Owner.

B. Manufacturers standard products are subject to review of samples, and trial portions of construction.

**2.2 ELASTOMERIC GLAZING SEALANTS**

A. Use Sealants complying generally with requirements as specified in Section 07901, Joint Sealers, except where otherwise specified in this Section.

B. Install sealants for glazing, selected for adhesion, compatibility, and context, using products as listed below.

C. Two-Part Polysulfide Glazing Sealant: Type M, grade NS, class 25, uses NT, M, G, A, and O as

**3.1 EXAMINATION**

A. Inspect works of glass framing erector, and other adjacent construction in place. Deliver written report listing conditions, if any, detrimental to performance of installed Glazing.

B. Inspection shall be to check suitability of preceding work as follows:

1. Compliance with manufacturing tolerances
2 Compliance with installation tolerances
3. Other tolerances, including size, squareness, alignment, offsets at corners
4. Presence and effective operation of weep system
5. Sufficiency of bearings and anchors for glass support
6. Sufficiency of clearances for edge and face dimensions

**3.2 PREPARATION**

A. Pre-installation Conference: Sealant manufacturers' technical representatives are required to participate in pre-installation conference as specified in Section XXXXX, Glass and Glazing.

B. Cleaning: Immediately prior to installation of Glazing, thoroughly clean metal frames and profiles ready to receive glass. Remove coatings, which are not firmly bonded to substrates. Remove lacquer from metal surfaces where elastomeric sealants are indicated for use.

C. Sealant Adhesion: Apply primers to joint surfaces where required for adhesion of sealants, as determined by trial portions and other pre-construction testing of sealants.

**3.3 PREPARATION OF GLASS**

A. Advise on handling of glass during installing of Sealers installed before and after installing of Glass.

B. Frame Dimensions: Do not proceed with installation if the frame dimensions are incorrect. Dimensions of glazing frames as indicated on shop drawings are intended to provide installed conditions as follows:

1. Firm support for glass, and for resilient Sealers, in all directions.
2. Neat jointed edges, of constant dimension.
3. Maximum continuous edge support.
4. Continuous adhesion where designed for adhesion.
5. Adequate sealant thickness', and firm entrapment.
6. Reasonable tolerances, relevant to sequence and context.

**3.4 INSTALLING OF GLASS**

A. Spacers, edge blocking, glazing tape: Install as work of Section 08810, Glass and Glazing.

B. Application of Sealants: Install compressible filler-rods or other purpose-made material as recommended by manufacturers of installed Glass and sealant. Install filler rods to effectively deliver requirements as follows:

1. Prevent sealant from obstructing drainage channel adjacent to edges of glass.

2.

1. Ensure complete "wetting" bond between glass and adjacent frame by means of compressive action of tooling.

2. Install pressurised tapes and gaskets to protrude slightly out of interstices.

3. For sealants installed with permanent residual pressure applied through gaskets, provide anchorage sufficient to ensure the gaskets cannot be forced out of position due to residual pressure in sealant or other causes.

4. Lock-Strip Gaskets: For glazing installed with lock-strip gaskets, if any, comply with ASTM C716 and printed recommendations of gasket manufacturer. Provide supplementary wet seal and weep system unless otherwise indicated.

**3.5 INSTALLATION ACCURACY**

A. Install Sealers, as smooth continuous profiles, tooled or installed as shop drawings, with corners



### 1.4 DELIVERY, STORAGE, AND HANDLING

A. Comply with manufacturer's instructions for shipping, storing, and handling mirrored glass; avoid deterioration of silvering, damage to edges, and abrasion of glass surfaces and applied coatings. Store indoors, protected from moisture including condensation.

### 1.5 PROJECT CONDITIONS

A. Environmental Conditions: Do not proceed with mirrored glass installation until ambient conditions of temperature and humidity will be continuously maintained at values near those indicated for final occupancy.

## PART 2 - PRODUCTS

### 2.1 MANUFACTURERS

A. Available Manufacturers: Subject to compliance with requ

**2.4 MISCELLANEOUS MATERIALS**

**3.2 PROTECTION AND CLEANING**

A. Protect mirrored glass from breakage and contaminating substances resulting from construction operations.

B. Do not permits edges of mirror to be exposed to standing water.

C. Maintain environmental conditions that will prevent mirror from being exposed to moisture from condensation or other sources for continuous periods of time.

D. Wash mirrors not more than 4 days prior to date scheduled for inspections intended to establish date for Substantial Completion. Wash glass by methods recommended in NAMM document and by mirrored glass manufacturer. Use water or glass cleaners free from substances capable of damaging mirror edges or glass coating.

**END OF SECTION**

**SECTION 09225**

**LATH AND PLASTER**

## PART - GENERAL

### 1.1 SUMMARY

A. This Section includes the following:

1. Portland cement plastering.

B. Wood framing and furring are specified in Division 6.

C. Portland cement plaster scratch and leveling coats on wall surfaces indicated to receive tile are specified in Division 9 Section "Tile."

### 1.2 DELIVERY, STORAGE, AND HANDLING

A. Deliver materials in original packages, containers, or bundles bearing brand name and identification of manufacturer.

B. Store materials inside, under cover, and in manner to keep them dry, protected from weather, direct sunlight, surface contamination, aging, corrosion, and damage from construction traffic and other causes. Neatly stack gypsum lath flat to prevent deformation.

C. Handle gypsum lath to prevent damage to edges, ends, or surfaces. Protect metal corner beads and trim from being bent or damaged.

### 1.3 PROJECT CONDITIONS

A. Environmental Requirements, General: Comply with requirements of referenced plaster application standards and recommendations of plaster manufacturer for environmental conditions before, during, and after application of plaster.

B. Ventilation: Ventilate building spaces as required to remove water in excess of that required for hydration of plaster. Begin ventilation immediately after plaster is applied and continue until it sets.

C. Protect contiguous work from soiling, spattering, moisture deterioration and other harmful effects that might result from plastering.

## PART 2 - PRODUCTS

### 2.1 STEEL STUDS AND RUNNERS (TRACKS)

A. Non-Load (Axial) - Bearing Studs and Runners: ASTM C 645 and complying with following requirements for minimum thickness of base metal (uncoated) and other characteristics:

1. Stud Thickness: 8 mm minimum thk. base (uncoated metal for head runners, sill runners, jambs and cripple studs at openings, unless otherwise indicated.

2. Stud Depth: 412 mm, unless otherwise indicated.

3. Stud Depth: unless otherwise indicated.

4. Protective Coating: ASTM A 653, G40 (ASTM A 653M, Z90) hot-dip galvanized coating.

5. Hat Channels: Hat-shaped screwable furring channels, 7/8 inch (22.2 mm) deep, formed from zinc-coated (galvanized) steel sheet, minimum 0.0179 inch (0.455 mm) thick, Grade 33.

B. Load-Bearing (Transverse and Axial) Studs and Runners: ASTM C 955 and complying with the following requirements for quality, grade, and finish of steel sheet, design thickness of base metal (uncoated), and other dimensional characteristics:

1. Metal Quality: Zinc-

3. Type: Type X for fire-resistance-rated assemblies and where indicated.

4. Thickness: As indicated, or if not otherwise indicated, as required to comply with ASTM C 841 for type of installation and support spacing provided.

C. Lath Attachment Devices: Devices of material and type required by referenced standards and recommended by lath manufacturer for secure attachment of lath to framing members and of lath to lath.

**2.4 PLASTER ACCESSORIES FOR GYPSUM PLASTER**

A. General: Comply with material provisions of ASTM C 841; coordinate depth of accessories with thickness and number of plaster coats required.

B. Metal Corner Beads: Fabricated from zinc-coated (gal2 l(c)-7(o)8(a)oired.

**2.7 PORTLAND CEMENT PLASTER MATERIALS**

A. Base Coat Cements: Type as indicated below:

1. Portland cement, ASTM C 150, Type I or II.
2. Masonry cement, ASTM C 91, Type N.

B. Finish Coat Cement: Type as indicated below:

1. Portland cement, ASTM C 150, Type I, white.
2. Masonry cement, ASTM C 91, Type N, white.

C. Factory-Prepared



and in parts by volume per sum of cementitious materials for aggregates to comply with the following requirements for each method of application and plaster base indicated. Adjust mix proportions below within limits specified to attain workability.

1. Fiber Content: Add fiber to following mixes after ingredients have mixed at least 2 minutes. Comply with fiber manufacturer's directions but do not to exceed 3.2 kg. per cu. ft. of cementitious materials. Reduce aggregate quantities accordingly to maintain workability.

2. Three-Coat Work Over Metal Lath: Base coats as indicated below at contractors option.

   a. Scratch Coat: 1 part portland cement, 0 to 3/4 parts lime, 2-1/2 to 4 parts sand.
   b. Brown Coat: 1 part portland cement, 0 to 3/4 parts lime, 3 to 5 parts sand.
   c. Scratch Coat: 1 part portland cement, 3/4 to 1-1/2 parts lime, 2-1/2 to 4 parts sand.
   d. Brown Coat: 1 part portland cement, 3/4 to 1-1/2 parts lime, 3 to 5 parts sand.
   e. Scratch Coat: 1 part masonry cement, 2-1/2 to 4 parts sand.
   f. Brown Coat: 1 part masonry cement, 3-5 parts sand.
   g. Scratch Coat: 1 part portland cement, 1 to 2 parts masonry cement, 2-1/2 to 4 parts sand.
   h. Brown Coat: 1 part portland cement, 1 to 2 parts masonry cement, 3 to 5 parts sand.

C. Job-



### 3.5 INSTALLATION OF PLASTERING ACCESSORIES

A. General: Comply with referenced lathing and furring installation standards for provision and loca

**3.7 PLASTER APPLICATION, GENERAL**

A. Clean plaster bases and substrates for direct application of plaster removing loose material and substrates that may impair he works.

B. Each concrete and concrete unit masonry surfaces indicated for direct plaster application to obtain adequate section and mechanical band or plaster.

C. Prepare monolithic surfaces for bonded base coats and use bonding compound or agent to comply with requirements of referenced plaster application standards for conditioning of monolithic surfaces.

D.

C. Finish Coats: Apply finish coats to comply with the following requirements:

1. Troweled finish for gypsum finish coat plasters, unless otherwise indicated.

2. Floated finish for gypsum finishes coats of type and where indicated; match Architect's sample for texture and color.

D. Moist cure plaster and finish coats to comply with ASTM C 926 including written instructions for time between coat curing.

**3.9 PORTLAND CEMENT PLASTER APPLICATION**

A. Portland Cement Plaster Application Standard: Apply portland cement plaster materials, compositions, and mixes to comply with ASTM C 926.

B. Number of Coats: Apply portland cement plaster, of composition indicated, to comply with the following requirements:

1. Use three-coat work over the following plaster bases:

a. Metal lath.
b. Concrete unit masonry.
c. Concrete, cast-in-place or pre-cast when surface complies with ASTM C 926 for plaster bonded direct to solid base.

2. Use two-coat work over the following plaster bases:

a. Concrete unit masonry.
b. Concrete, cast-in-place or pre-cast when surface complies with ASTM C 926 for plaster bonded direct to solid base.

3. Finish Coat: Floated finish unless otherwise indicated; matches Architect's sample for texture and color.

C. Moist-cure portland cement plaster base and finish coats to comply with ASTM C 926, including recommendations for time between coats and curing in "Annex A2 Design Considerations."

**3.10 CUTTING AND PATCHING**

A. Cut, patch, point up, and repair plaster as necessary to accommodate other work and to restore cracks, dents, and imperfections. Repair or replace work to eliminate blisters, buckles, excessive crazing and check cracking, dry outs, efflorescence, sweat outs, and similar defects and where bond to the substrate has failed.

B. Sand smooth-troweled finishes lightly removing trowel marks and arises.

**3.11 CLEANING AND PROTECTION**

A. Remove temporary protection and enclosure of other work. Promptly remove plaster from door frames, windows, and other surfaces that are not to be plastered. Repair floors, walls, and other surfaces that have been stained, marred, or otherwise damaged during the plastering work. When plastering work is completed, remove unused materials, containers, and equipment and clean floors of plaster debris.

B. Provide final protection and maintain conditions, in a manner suitable to Installer that ensure plaster work's being without damage or deterioration at time of Substantial Completion.

**END OF SECTION**

# SECTION 09250

# GYPSUM BOARD/FICEM BOARD CEILING & PARTITION

## PART 1 - GENERAL

### 1.1 WORK INCLUDED

A. Metal framing, 16 gage and lighter, to receive gypsum board products as finish.

B. Exterior and Interior Gypsum board, Ficem Board, Ceiling & Wall Partition, Thai and accessories

C. Concealed acoustical insulation, where shown on drawings and schedules.

D. Joint treatment

E. Sound transmission characteristics

F. Fire Rest resolves characteristics

### 1.2 QUALITY ASSURANCE

A. Perform gypsum wallboard systems work in accordance with recommendations of ASTM C754 and ASTM C840 unless otherwise specified or as otherwise directed by the Architect.

B.

9.

2. Firestop Type C, Georgia-Pacific Corp

3. Fire-Shield G, Gold Bond Building Products Div., National Gypsum Co

4. SHEETROCK Brand Gypsum Panels, FIRECODE, C Core, United States Gypsum Company.

5. SHEETROCK Brand Gypsum Panels. ULTRACODE Core, United States Gypsum Company.

2. Gypsum Backing Board for Multilayer Applications: ASTM C 442 or A 36, thickness as indicated.

a. Type: Type X for fire-resistive-rated assemblies.

b. Type: Foil-backed where indicated.

3. Exterior Gypsum Board: ASTM C 931, thickness as indicated.

a. Type: Regular, unless otherwise indicated.

b. Type: Type X for fire-resistive-rated assemblies.

4. Glass-Mat Water-Resistant Gypsum Backing Board: ASTM C 1178, of type and thickness indicated below.

a. Type and Thickness: Regular, 1/2 inch thick, unless otherwise indicated.

b. Type and Thickness: Type X, 5/8 inch thick, for fire-resistive-rated assemblies.

c. Product: Subject to compliance with requirements, provide Dens-Shield Tile Backer units manufactured by Georgia Pacific Corp.

E. Cementitious Backer Units: Panels complying with ANSI A118.9, of thickness indicated below, and in maximum lengths available to minimize end-to-end butt joints.

1. Thickness: 7/16 inch, unless otherwise indicated.

2. Thickness: 1/2 inch, unless otherwise indicated.

3. Thickness: Manufacturer's standard thickness but not less than 7/16 inch, unless otherwise indicated.

4. Thickness: 5/8 inch, where indicated.

5. Thickness: As indicated.

F. Accessories for Interior Installation: Corner beads, edge trim, and control joints complying with ASTM C 1047 and requirements indicated below.

1. Materials: Formed metal, plastic, or metal combined with paper, with metal complying with the following requirements.

a. Sheet steel zinc-coated by hot-dip process.

b. Sheet steel coated within zinc by hot-dip electrolytic processes or with aluminum or rolled zinc.

2. Shapes indicated below by reference to Fig. 1 designations in ASTM C 1047:

a. Cornerbead on outside corners, unless otherwise indicated.

b. LC-bead with both face and back flanges; face flange formed to receive joint compound. Use LC-beads for edge trim unless otherwise indicated.

c. L-bead with face flange only; face flange formed to receive joint compound. Use L-bead where indicated.

d. U-bead with face and back flanges; face flange formed to be left without application of joint compound. Use U-bead where indicated.

e. One-piece control joint formed with V-shaped slot, with removable strip covering slot opening.

G. Zinc Accessories for Exterior Ceilings: Corner beads, edge trim, and control joints formed from rolled zinc complying with ASTM C 1047, in shapes indicated below by reference to ASTM C 1047:

1. Corner bead on outside corners, unless otherwise indicated.

2. Edge trim complying with ASTM C 1047, formed from rolled zinc, shape LC-bead per Fig. 1, unless otherwise indicated.

H. Aluminum Accessories: Where indicated, provide manufacturer's standard extruded aluminum accessories of profile indicated and with the following finish:

1. Class II Clear-Anodized Finish: AA-C12C22A31.

I. Gypsum Board Joint Treatment Materials: ASTM C 475 and ASTM C 840, and as follow:

1. Joint Tape: Paper reinforcing tape, unless otherwise indicated.

a. Use open-weave glass-fiber tape where recommended by gypsum board manufacturer with setting-type joint compound.

2. Setting-Type Joint Compound: Factory-package, job-mixed chemical-hardening powder products formulated for uses indicated.

a. For topping compound, use sandable formulation.

3. Drying-Tape Joint Compounds: Factory-packaged, vinyl-based products complying with the following requirements.

a. Ready-Mixed Formulation: Factory premixed.

b. Job-Mixed Formulation: Powder product, mixed with water at Project Site.

c. Tapping compound formulated for embedding tape and first coat over fasteners and flanges of corner beads and edge trim.

d. Topping compound formulated for fill (second) and finish (third) coats.

e. All-purpose compound formulated as both taping and topping around.

J. Joint Compound for Cementitious Backer Unit: Materials recommended by cementitious backer unit manufacturer.

K. Miscellaneous Materials: As follows, recommended by gypsum board manufacturer.

1. Laminating Adhesives: Product recommended by gypsum board manufacturer.

2. Fastening Adhesive for Wood: ASTM C 557.

3. Steel drill screws complying with ASTM C 1002 for fastening gypsum board to steel members less than 0.03 inch thick.

4. Steel drill screws complying with ASTM C 954 for fastening gypsum board to steel members from 0.03 to 0.112 inch thick.

5. Gypsum Board Nails: ASTM C 514.

6. Corrosion-resistant-coated steel drill screws of sized and type recommended by board manufacturer for fastening cementitious backer units.

7. Asphalt-Saturated Organic Felt: ASTM C 226, Type I (No. 15 asphalt felt), non-perforated.

8. Exposed and Concealed Acoustical Sealant: Manufacturer's standard nonsage, paintable, non-staining latex sealant complying with ASTM C 834.

9. Concealed Acoustic Sealant: Comply with requirements specified in Division 7 Section "Joint Sealant"

10. Sound Attenuation Blankets: ASTM C 665, Type I, unfaced mineral-fiber blanker insulation.

11. Thermal Insulation for Z-Furring Members: ASTM C 665, Type I, unfaced mineral fiber blanker insulation.

12. Thermal Insulation for Z-Furring Members: ASTM C 578, Type IV, extruded polystyrene board insulation with flame-spread and mock-developed ratings or not more than 25 and 450, respectively, per ASTM E 84.

13. Polyethylene Vapor Retarder: ASTM D 4397, thickness and maximum per meance rating as follows:

a. 4.0 mils, 0.19 perms
b. 6.0 mils, 0.13 perms

**PART 3 - EXECUTION**

**3.1 INSTALLATION**

A. Metal Framing/Erection & Board Installation for Wall Partition

1. Accurately layout the track for top and bottom horizontal
2. Attach stud vertically, spaced at 600mm o.c. or as specified
3. Attached track horizontally, spaced at 1200mm o.c. or as specified
4. Fix Board using screw or rivets
5. Putty works

B. Metal Framing Erection: Install metals framing in accordance with ASTM C754 and manufacturer's recommendations.

1. Install members true to lines and levels to provide surface flatness with maximum variation of 3mm in 3 meters in any direction.

2. Door opening Framing: Install double studs at door frame jambs; install runners on each side of opening at frame head height between jamb studs and adjacent studs.

a. Brace each jamb of door openings in partitions terminating at ceiling, with 45-angle stud in each direction perpendicular to partition; attach to structure.

b. Frame opening other than doors in same manner as specified, unless otherwise indicated.

3. Install metal framing backing where required for support of fixtures, cabinets, accessories, hardware and other partition and ceiling mounted work indicated.

4. Coordinate installation of bucks, anchors, blocking, electrical and mechanical work, which is to be placed in or behind partition framing; allow items to be installed after framing, is complete.

5. Install runner tracks at floors, ceiling and structural walls and columns where gypsum drywall stud system abuts other work, except as otherwise indicated.

a. Where studs of various gages are used in one run of track. Use track of gage to match heaviest studs.

b. Align tracks accurately to layout at base and tops of studs.

c. Head tracks shall have extra long legs, of dimensions indicated, to accommodate fireproofing thickness and additional depth to anchor studs.

d. Secure tracks as recommended by stud manufacturer for type of construction involved, except

4. Install cementitious backer units at showers, tubs, and where indicated to comply with ANSI A108.11.

5. Install glass-mat water-resistant gypsum backing board panels to comply with manufacturer's installation directions.

6. Install water-resistant backing board where indicated to receive thin-set tile and similar rigid finishes at tubs, showers, and where indicated.

7. Install exterior gypsum board for exterior ceilings and soffits where indicated.

8. Install gypsum-backing board where work is indicated to receive adhesively applied acoustical tile.

9. Do not screw gypsum boards of studs into the runner track to allow for differential floor specifications.

10.

2. Erect gypsum board with ends and edges occurring over firm bearing.

3. For double layers, secure second layer with screws of sufficient length to attach to metal framing system, in accordance with manufacturer's recommendations.

4. Ensure joints of second layer do not occur over joints of first layer in double layer applications.

5. Avoid end-butt joints where possible, located exposed end-butt joints as far from center of surfaces as possible and stagger minimum 300mm in alternate courses of wallboard.

6. Treat cut edges and holes in moisture resistant gypsum board with sealant.

7. Place control joints where shown and to be consistent with lines of building spaces and as directed by Architect.

   a. Provide where system abuts structural elements.

   b. Provide at dissimilar materials.

   c. Ceiling areas exceeding 18.0 meters or 250 sq. meters

   d. Wings of "L", "U" and "T" shaped ceilings.

8. Place corner beads at external corners; use longest practical lengths.

9. Place edge trim where gypsum board abuts dissimilar materials.

10. Tape, fill, and sand exposed joints, edges, corners and openings to produce surface ready to receive finishes; feather coats onto adjoining surfaces.

11. Three coat finishing and sanding is required for surfaces indicated to be painted; provide flush, smooth joints and surfaces ready for applied paint finishes.

   a. Omit third coat and sanding in areas not indicated to be painted.

12. Tolerances: Maximum 5mm in 2.50 meters or 2mm in 1.0 meter, non-cumulative, variation in plumb, level, or plane; maximum 2mm offset in plane or panel joints.

13. Remove and replace defective work.

F. Finishing Gypsum Board Assemblies: Apply joint treatment at gypsum board joints (both directions); flanges of corner bead, edge, trim, and control joints; penetrations; fastener heads, surface defects, and elsewhere, as required, to prepare gypsum board surfaces for decoration and levels of gypsum board finish indicated.

1. Apply joint tape over gypsum board joints and to trim accessories with concealed face flanges as recommended by trim accessory manufacturer and as required to prevent cracks from developing in joint compound at flange edges.

2. Levels of Gypsum Board Finish: Provide the following levels of gypsum board finish per GA-214.

   a. Level 1 for ceiling plenum areas, concealed areas, and where indicated, unless a higher level of finish is required for fire-resistive-rated assemblies and sound-rated assemblies.

   b. Level 2 of Gypsum Board Finish: Provide the following levels of gypsum board finish per GA-214.

   c. Level 3 for gypsum board surfaces where indicated.

   d. Level 4 for gypsum board surfaces unless otherwise indicated.

   e. Level 5 for gypsum board surfaces where indicated.

3. For level 4 gypsum board finish, embed tape in finishing compound plus two



[redacted]

**SECTION 09260**

**GYPSUM BOARD**
**(Moisture-Resistant)**

## PART 1 - GENERAL

### 1.1 WORK INCLUDED

A. Metal framing, 16 gage and lighter, to receive gypsum board products as finish.

B. Exterior and Interior Gypsum board and accessories.

C.

PROPOSED GALERIES TOWER MANILA
NATIVIDAD LOPEZ ST. CO

ASYA DESIGN PARTNER

[redacted]

7. Grid Suspension System for Interior Ceilings: ASTM C 645, suspension system composed of interlocking main beams and cross furring members forming a modular supporting network.

C. Steel Framing for Walls and Partitions: Comply with ASTM C 754 and the following:

1. Component Sizes and Spacings: As indicated but not less than that required to comply with ASTM C 754 under the following maximum deflection and lateral loading conditions:

   a. Maximum Deflection: L/240 at 5 lbf per sq. ft.

2. Protective Coating for Framing Members: G40 hot-dip galvanized coating per ASTM A 525.

3. Steel Studs and Runners: ASTM C 645; 0.0179-inch base metal thickness, unless otherwise indicated.

4. Steel Rigid Furring Channels: ASTM C 645,0.0179-inch base metal thickness, hat-shaped.

5. Steel Resilient Furring Channels: Standard product designed to reduce sound transmission, fabricated from steel sheet complying with ASTM A 525 or ASTM A 568 to form 1/2

5. SHEETROCK Brand Gypsum Panels. ULTRACODE Core, United States Gypsum Company.

2. Gypsum Backing Board for Multilayer Applications: ASTM C 442 or A 36, thickness as indicated.

   a. Type: Type X for fire-resistive-rated assemblies.

   b. Type: Foil-backed where indicated.

3. Exterior Gypsum Board: ASTM C 931, thickness as indicated.

   a. Type: Regular, unless otherwise indicated.

   b. Type: Type X for fire-resistive-rated assemblies.

4. Glass-Mat Water-Resistant Gypsum Backing Board: ASTM C 1178, of type and thickness indicated below.

   a. Type and Thickness: Regular, 1/2 inch thick, u 792 l6u 792 l6u]n99.810596 TzBT/F2 75 Tf0.12 0 0 0.12;5/F2 7

d. U-bead with face and back flanges; face flange formed to be left without application of joint compound. Use U-bead where indicated.

e. One-piece control joint formed with V-shaped slot, with removable strip covering slot opening.

G. Zinc Accessories for Exterior Ceilings: Corner beads, edge trim, and control joints formed from rolled zinc complying with ASTM C 1047, in shapes indicated below by reference to ASTM C 1047:

1. Corner bead on outside corners, unless otherwise indicated.
2. Edge trim complying with ASTM C 1047, formed from rolled zinc, shape LC-bead per Fig. 1, unless otherwise indicated.

H. Aluminum Accessories: Where indicated, provide manufacturer's standard extruded aluminum accessories of profile indicated and with the following finish:

1. Class II Clear-Anodized Finish: AA-C12C22A31.

I. Gypsum Board Joint Treatment Materials: ASTM C 475 and ASTM C 840, and as follows:

1. Joint Tape: Paper reinforcing tape, unless otherwise indicated.

a. Use open-weave glass-fiber tape where recommended by gypsum board manufacturer with setting-type joint compound.

2. Setting-Type Joint Compound: Factory-package, job-mixed chemical-hardening powder products formulated for uses indicated.

a. For topping compound, use sandable formulation.

3. Drying-Tape Joint Compounds: Factory-packaged, vinyl-based products complying with the following requirements.

a. Ready-Mixed Formulation: Factory premixed.

b. Job-Mixed Formulation: Powder product, mixed with water at Project Site.

c. Tapping compound formulated for embedding tape and first coat over fasteners and flanges of corner beads and edge trim.

d. Topping compound formulated for fill (second) and finish (third) coats.

e. All-purpose compound formulated as both taping and topping around.

J. Joint Compound for Cementitious Backer Unit: Materials recommended by manufacturer of backer unit.

6. Corrosion-resistant-coated steel drill screws of sized and type recommended by board manufacturer for fastening cementitious backer units.

7. Asphalt-Saturated Organic Felt: ASTM C 226, Type I (No. 15 asphalt felt), non-perforated.

8. Exposed and Concealed Acoustical Sealant: Manufacturer's standard non-sag, paintable, non-staining latex sealant complying with ASTM C 834.

9. Concealed Acoustic Sealant: Comply with requirements specified in Division 7 Section "Joint Sealants"

10. Sound Attenuation Blankets: ASTM C 665, Type I, unfaced mineral-fiber blanker insulation.

11. 018 l611.999986 792 l611.999986 0.000018 lW n99.810596 TzBT/F2 75 Tf0.12 0 0 0.12 151.199997 571.679993

d. Secure tracks as recommended by stud manufacturer for type of construction involved, except do not exceed 600mm o.c. spacing for nails or powder- driven fasteners, or 400mm o.c. for other types of attachment.

1) Provide fasteners at corners and ends of tracks.

B. Install steel framing to comply with ASTM C 754 and ASTM C 840.

1. Do not bridge building expansion joints with support systems; frame both sides of joints with furring and other supports as indicated.

2. Secure hangers to structural support by connecting directly to structure where possible. Otherwise connect to inserts, clips, other anchorage devices, or fasteners, as indicated.

3. Install directly hung grid suspension system, including perimeter wall track or angle, with members spaced and installed to comply with manufacturers instructions.

4. Install steel studs with bottom and top runner tracks anchored to substrates. Isolate system from building structure to prevent transfer of loading and deflections into metal support system, both vertically and horizontally.

5. Frame door and other openings with studs and runners of thickness, number and arrangement to comply with manufacturer's recommendations for size of opening, weight and height of doors, and stud size, unless otherwise indicated.

6. Erect insulation and Z-furring members to comply with manufacturer's directions.

7. Install polyethylene vapor retarder, where indicated, to comply with the following requirements:

a. Extend vapor retarder to extremities of areas to be protected from vapor transmission. Secure in place with mechanical fasteners of adhesives. Extend vapor retarder to cover miscellaneous voids in insulates substrates.

b. Seal vertical joints in vapor retarders over framing by lapping not less than two wall studies. Faster vapor retarders to framing at top, end, and bottom edges, at perimeter of wall opening openings, and at lap joints.

c. Seal joints in vapor retarders caused by pipes, conduits, electrical boxes and similar items penetrating vapor retarders with vapor retarder tape. Repair any tears or punctures

8. Install supplementary framing, runners, furring, blocking, and bracing at openings and terminations in gypsum board assemblies and where required to support other work that cannot be adequately supported on gypsum board alone.

C. Install and finish gypsum board to comply with ASTM C 840 and as follows:

1. For floating construction for gypsum boards at internal corners, except where special isolation or edge trim is indicated.

2. Isolate gypsum board construction from abutting structural and masonry work. Provide edge trim and acoustical sealant as recommended by manufacturer.

3. Install sound attenuation blankets where indicated, without gaps, and support, where necessary, to prevent movement or dislocation.

4. Install cementitious backer units at showers, tubs, and where indicated to comply with ANSI A108.11.

5. Install glass-mat water-resistant gypsum backing board panels to comply with manufacturer's installation directions.

6. Install water-resistant backing board where indicated to receive thin-set tile and similar rigid finishes at tubs, showers, and where indicated.

7. Install exterior gypsum board for exterior ceilings and soffits where indicated.

8. Install gypsum-backing board where work is indicated to receive adhesively applied acoustical tile.

9.

3. For double layers, secure second layer with screws of sufficient length to attach to metal framing system, in accordance with manufacturer's recommendations.

4. Ensure joints of second layer do not occur over joints of first layer in double layer applications.

5. Avoid end-butt joints where possible, located exposed end-butt joints as far from center of surfaces as possible and stagger minimum 300mm in alternate courses of wallboard.

6. Treat cut edges and holes in moisture resistant gypsum board with sealant.

7. Place control joints where shown and to be consistent with lines of building spaces and as directed by Architect.

    a. Provide where system abuts structural elements.

    b. Provide at dissimilar materials.

    c. Ceiling areas exceeding 18.0 meters or 250 sq. meters

    d. Wings of "L", "U" and "T" shaped ceilings

8. Place corner beads at external corners; use longest practical lengths.

9. Place edge trim where gypsum board ab

9. Finish water-resistant gypsum backing board forming base for ceramic tile to comply with

# SECTION 09270

# ACCESS DOORS AND PANELS

## PART 1 GENERAL

### 1.1. SECTION INCLUDES

A. Wall access door and frame units, scheduled locations, and details of adjoining work.
B. Manufacturer's Installation Instructions: Indicate installation requirements.
C. Project Record Documents: Record actual locations of each access unit and Indicate equipment, device, or valve to which the panel provides access.

## PART 2 PRODUCTS

### 2.1. ACCESS DOORS AND PANELS

A. All Units: Factory fabricated, fully assembled units with corner joints welded, filled, and ground flush; square and without rack or warp; coordinate requirements with assemblies units are to be installed in.
B. Units in Fire Rated Assemblies: Fire rating equivalent to the fire rated assembly in which they are to be installed.
    1. Provide products listed and test certificate by recognized test lab as suitable for the purpose specified and indicated.

### 2.2. WALL AND CEILING UNITS

A. Door and Frame Units: Factory fabricated, fully assembled units with corner joints welded, filled, and ground flush; square and without rack or warp; coordinate requirements with assemblies units are to be installed in.
    1. Material, Wall Units: form by Steel frame with finish to match adjacent wall finishes.
    2. Material, Ceiling Units: Aluminum or Steel with finish to match adjacent ceiling finishes.

B. General: The following access panel types are for selection as required whether or not indicated on drawings. The INTERIOR FINISHES CONTRACTOR shall evaluate the specific requirements and provide the appropriate system based on the condition, as all types may not be required on the project. The inclusion of any of the listed access panel types does not necessarily imply that the condition exists in the scope of work.

C. Standard Door and Frame Units: Formed by aluminum or steel with 1.5 mm thick Zincalume steel AZ150 minimum.
    1. Sizes: As required to allow access and maintenance of valves, fixtures, and concealed equipment indicated, or minimum:
        a. Walls: 300 x 300 mm.
        b. Ceilings: 300 x 300 mm.
        c. Check with manufacturer for any special size to see the possibility in manufacture the special require size
    2. Prime coat with baked on primer.
    3. Frame: Frameless with set bead, featheredge.
    4. Latch: torch lock, concealed locks, key lock or screw fixed.
    5. Hinges: concealed.
    6. Fire rated and non-rated as required.
    7. Provide gypsum board recessed panel with tape and mud flange at gypsum board walls.

D. Fully Concealed Door and Frame Units: 1.5 mm Zincalume steel AZ150. Door face lined with fiber cement sheet (board thickness to be determine by the thickness of attachment).

    1. Sizes: As required to allow access and maintenance of valves, fixtures, and concealed equipment indicated, or minimum:

        a. Walls: 300 x 300 mm.
        b. Ceilings: 300 x 300 mm.
        c. Check with manufacturer for any special size to see the possibility in manufacture the

special require size.

2. Stone faced. In field
3. Frame: Frameless, recessed
4. Latch: key lock, concealed locks or latches.
5. Hinges: concealed, full height continuous hinge sized to carry load capacity of fully fitted panel with stone.
6. Stone tile thickness: 20 mm (to be advise the actual thickness).
7. Joint width: 3 mm

**PART 3 EXECUTIONS**

Suppliers = Rondo by World Home Depot

**3.1. EXAMINATION**

A. Verify that rough openings are correctly sized and located.

**3.2. INSTALLATION**

A. Install units in accordance with manufacturer's instructions.
B. Ensure there is a provision of perimeter supporting frame for access panel
C. Install frames plumb and level in openings. Secure rigidly in place.
D. Position units to provide convenient access to the concealed work requiring access.
E. Drawings indicate general locations for access panels. Coordinate exact locations required to allow access to valves, ballasts, etc. Coordinate location with other wall and ceiling work to produce unified flush installation.

**END OF SECTION**

# SECTION 09310

# CERAMIC TILE

## PART 1 - GENERAL

### 1.1 DESCRIPTION OF WORK:

A. Definition: Tile includes ceramic surfacing units made from clay or other ceramic materials.

B. Extent of tile work is indicated on drawings and schedules.

C. Types of tile work in this section include the following:

1. Glazed ceramic tile for walls & unglazed ceramic tile for floors.
2. As shown on drawings.

D.

PROPOSED GALERIES TOWER MANILA

[redacted]

PROPOSED GALERIES TOWER MANILA

ASYA DESIGN PARTNER

[redacted]

B. TCA Installation Guidelines: TCA "Handbook for Ceramic Tile Installation"; comply with TCA installation methods indicated or, if not otherwise indicated, as applicable to installation conditions shown.

C. Extend tile work into recesses and under or behind equipment and fixtures, to form a complete covering without interruptions, except as otherwise shown. Terminate work neatly at obstructions, edges and corners without disrupting pattern or joint alignments.

D. Accurately form intersections and returns. Perform cutting and drilling of tile without marring visible surfaces. Carefully grind cut edges of tile abutting trim, finish or built-in items for straight aligned joints. Fit tile closely to electrical outlets, piping, fixtures and other penetrations so that plates, collars, or covers overlap tile.

E. Jointing Pattern: Unless otherwise shown, lay tile in grid pattern. Align joints when adjoining tiles on floor, base, walls and trim are same size. Layout tile work and center tile fields in both directions in each space or on each wall area. Adjust to minimize tile cutting. Provide uniform joint widths, unless otherwise shown.

F. Lay out tile wainscots to next full tile beyond dimensions indicated.

G. Expansion Joints: Locate expansion joints and other sealant filled joints, including control, contraction and isolation joints, where indicated. Do not saw cut joints.

H. Prepare joints and apply sealants to comply with requirements of referenced standards and sealant manufacturer.

I. Grout tile to cated.

A. Cleaning: Upon completion of placement and grouting, clean all ceramic tile surfaces so they are free of foreign matter.

1. Unglazed tile may be cleaned with acid solutions only when permitted by tile and grout manufacturer's printed instructions, but no sooner than 14 days after installation. Protect metal surfaces, cast iron and vitreous plumbing fixtures from effects of acid cleaning. Flush surface with clean water before and after cleaning.

B.

# SECTION 09320

# SYNTHETHIC GRANITE TILE

## PART 1 - GENERAL

### 1.1 DESCRIPTION OF WORK:

A. Definition: Tile includes ceramic surfacing units made from clay or other ceramic materials.

B. Extent of tile work is indicated on drawings and schedules.

C. Types of tile work in this section include the following:

1. Synthetic Granite tile, floors and walls. As indicated on plan

D. Sealing expansion and other joints in tile work with elastomeric joint sealers is work of this section.

### 1.2 QUALITY ASSURANCE:

A. Source of Materials: Provide materials obtained from one source for each type and color of tile, grout, and setting materials.

### 1.3 SUBMITTALS:

A. Product Data: Submit manufacturer's technical information and installation instructions for materials required, except bulk materials.

B. Shop Drawings: Submit shop drawings indicating tile patterns and locations and widths of control, contraction and expansion joints in tile surfaces. In case of owner supply of tiles contractor remains responsible for this part of the Work.

C. Samples for Initial Selection Purposes: Submit manufacturer's color charts consisting of actual tiles or sections of tile showing full range of colors, textures and patterns available for each type of tile indicated. Include samples of grout and accessories involving color selection.

D. Samples for Verification Purposes: Submit the following:

1. Samples for each type of tile and for each color and texture required, not less than 600mm square, on plywood or hardboard backing and



1. Use Kemgrip (Dribond)/ ABC/Davco Tile Adhesive.

**2.4 GROUTING MATERIALS:**

A. Sand-Portland Cement Grout: Provide materials complying with ANSI A108.10 and of color required to match Architect's sample.

B. Pre-packaged dry grout mix incorporating dry polymer additive in the form of a re-emulsifiable power to which only water is added at job site. Use Kemgrout(dribond) / Davco). Color verify Arch't.

**2.5 ELASTOMERIC SEALANTS:**

A. Elastomeric Sealant Standard: Provide manufacturer's standard chemically curing, elastomeric sealant of base polymer indicated which complies with ASTM C 920 requirements, including those for Type, Grade, Class and Uses.

B. Compatibility: Provide sealants, joint fillers and other related materials that are compatible with one another and with joint substrates under conditions of service and application, as demonstrated by testing and field experience.

C. Colors: Provide colors of exposed sealants to match colors of grout in tile adjoining sealed joints, unless otherwise indicated.

D. One-

B. TCA Installation Guidelines: TCA "Ha0(i)-4(o)Ha0(i)-4(o)2b-4(sBT/)-39l611.90018 l( )-390( )-390(T)-3(CA )-390(")-5(H

1. Unglazed tile may be cleaned with acid solutions only when permitted by tile and grout manufacturer's printed instructions, but no sooner than 14 days after installation. Protect metal surfaces, cast iron and vitreous plumbing fixtures from effects of acid cleaning. Flush surface with clean water before and after cleaning.

B. Finished Tile Work: Leave finished installation clean and free of cracked, chipped, broken, unbonded, or otherwise defective tile work.

C. Protection: When recommended by tile manufacturer, apply a protective coat of neutral protective cleaner to completed tile walls and floors. Protect installed tile work with kraft paper or other heavy covering during construction period to prevent staining, damage and wear.

D. Prohibit foot and wheel traffic from using tiled floors for at least 7 days after grouting is completed.

E. Before final inspection, remove protective coverings and rinse neutral cleaner from tile surfaces.

**END OF SECTION**

# SECTION 09330

# HOMOGENEOUS TILE

## PART 1 - GENERAL

### 1.1 DESCRIPTION OF WORK:

A. Definition: Tile includes ceramic surfacing units made from clay or other ceramic materials.

B. Extent of tile work is indicated on drawings and schedules.

C. Types of tile work in this section include the following:

1. Homogenous tile, floors and walls. As indicated plan.

D. Sealing expansion and other joints in tile work with elastomeric joint sealers is work of this section.

### 1.2 QUALITY ASSURANCE:

A. Source of Materials: Provide materials obtained from one source for each type and color of tile, grout, and setting materials.

### 1.3 SUBMITTALS:

A. Product Data: Submit manufacturer's technical information and installation instructions for materials required, except bulk materials.

B. Shop Drawings: Submit shop drawings indicating tile patterns and locations and widths of control, contraction and expansion joints in tile surfaces. In case of owner supply of tiles contractor remains responsible for this part of the Work.

C. Samples for Initial Selection Purposes: Submit manufacturer's color charts consisting of actual tiles or sections of tile showing full range of colors, textures and patterns available for each type of tile indicated. Include samples of grout and accessories involving color selection.

D. Samples for Verification Purposes: Submit the following:

1. Samples for each type of tile and for each color and texture required not less than 600mm square, on plywood or hardboard backing and grouted.

2. Full size samples for each type of trim, accessory and for each color.

3. 150mm long samples of stone thresholds

4. Samples of metal edge strip.

### 1.4 DELIVERY, STORAGE, AND HANDLING:

A. Deliver and store packaged materials in original containers with seals unbroken and labels intact until time of use. Prevent damage or contamination to materials by water, freezing, foreign matter or other causes.

### 1.5 PROJECT CONDITIONS:

A. Maintain environmental conditions and protects work during and after installation to comply with referenced standards and manufacturer's printed recommendations.

B. Vent to exterior to prevent damage to tile work from carbon dioxide build-up.

**PART 2 - PRODUCTS**

**2.1**

B. Pre-packaged dry grout mix incorporating dry polymer additive in the form of a re-emulsifiable power to which only water is added at job site. **(Use Kemgrout (Dribond)/ Davco - color verify Architect)**

**2.5 ELASTOMERIC SEALANTS:**

A. Elastomeric Sealant Standard: Provide manufacturer's standard chemically curing, elastomeric sealant of base polymer indicated which complies with ASTM C 920 requirements, including those for Type, Grade, Class and Uses.

B. Compatibility: Provide sealant, joint fillers and other related materials that are compatible with one another and with joint substrates under conditions of service and application, as demonstrated by testing and field experience.

C. Colors: Provide colors of exposed sealant to match colors of grout in tile adjoining sealed joints, unless otherwise indicated.

D. One-Part Mildew Resistant Silicone Sealant: Type S; Grade NS; Class 25; Uses NT, G, A, and as applicable to nonporous joint substrates indicated, O; formulated with fungicide for sealing interior joints in and around ceramic tile, showers, sinks and plumbing fixtures.

2.6 Cementitions Backer Units: Provide products complying with ANSI A118.9, of thickness and width indicated, and in maximum lengths available to maximums end-to-end butt joints.

**2.7 MISCELLANEOUS MATERIALS:**

A. Metal Edge Strips: Zinc alloy or stainless steel terrazzo strips, 1/8" wide at top edge with integral provision for anchorage to mortar bed or substrate, unless otherwise indicated.

B. Tile Cleaner: Product specifically acceptable to manufacturer of tile and grout manufacturer for application indicated and as recommended by National Tile Promotion Federation, 112 North Alfred St., Alexandria, VA 22134 or Ceramic Tile Institute, 700 N. Virgil Ave., Los Angeles, CA 90029.

C. Miscellaneous Materials: As follows:

1. Towelable Underlayments and Patching Compounds: Latex-modified, portland-cement-based formulation provides or approved by manufacturer of tile-setting materials for installations indicated.

**PART 3 - EXECUTION**

**3.1 EXAMINATION:**

A. Examine surfaces to receive tile work and conditions under which tile will be installed. Do not proceed with tile work until surfaces and conditions comply with requirements indicated in referenced tile installation standard.

**3.2 INSTALLATION, GENERAL:**

A. ANSI Tile Installation Standard: Comply with applicable parts of ANSI 108 series of tile installation standards included under "American National Standard Specifications for the Installation of Ceramic Tile".

B. TCA Installation Guidelines: TCA "Handbook for Ceramic Tile Installation"; comply with TCA installation methods indicated or, if not otherwise indicated, as applicable to installation conditions shown.

C. Extend tiles work into recesses and under or behind equipment and fixtures, to form a complete covering without interruptions, except as otherwise shown. Terminate work neatly at obstructions, edges and corners without disrupting pattern or joint alignments.

D. Accurately forms intersections and returns. Perform cutting and drilling of tile without marring visible surfaces. Carefully grind cut edges of tile abutting trim, finish or built-in items for straight aligned joints. Fit tile closely to electrical outlets, piping, fixtures and other penetrations so that plates, collars, or covers overlap tile.

E. Jointing Pattern: Unless otherwise shown, lay tile in grid pattern. Align joints when adjoining tiles on floor, base, walls and trim are same size. Layout tile work and center tile fields in both directions in each space or on each wall area. Adjust to minimize tile cutting. Provide uniform joint widths, unless otherwise shown.

F. Lay out tile wainscots to next full tile beyond dimensions indicated.

G. Expansion Joints: Locate expansion joints and other sealant filled joints, including control, contraction and

isolation joints, where indicated. Do not saw cut joints.

H. Prepare joints and apply sealant to comply with requirements of referenced standards and sealant manufacturer.

I. Grout tile to comply with the requirements of the following installation standards:

1. For ceramic tile grouts **(Use Kemgrout (Dribond)/ Davco -**

**SECTION 09520**

**ROCK WOOL**

**MANUFACTURED BUILDING INSULATION SPECIALTIES**

**PART – I**

**A. MATERIALS**

1. CSR GLASS WOOL OR FIBERGLASS INSULATION
   Classified as mineral fiber insulation, manufactured by controlled felting of bio-soluble glass wool bonded with thermosetting resin. Fire rated in accordance to ASTM E84, BS476 and AS1530: Part 3 – 1989.
2. CSR ROCK WOOL INSULATION
   Classified as mineral fiber insulation, which is spun from natural rock and bonded with thermosetting resin. Fire rated in accordance to ASTM E84, BS476 and AS1530: Part 3 – 1989.
3. ALUMINUM FOIL
   Recommended vapor barrier is the Bradford Foil Scrim Kraft (FSK) reflective with 3 ways glass fiber reinforced foil with paper laminate.

**PART – II**

**A. PRODUCT SPECIFICATION**

1. MAXIMUM SERVICE TEMPERATURE
   Bradford Insulation products are intended for use at temperatures normally prevailing in building structures.

| Product | |
|---|---|
| Unfaced Glass Wool | 350 deg C |
| Unfaced Fibertex R-40 | 350 deg. C |
| Unfaced Fibertex 350 | 350 deg C |
| Glass Wool w/ Thermofoil Facing | 70 deg C (Faced Surface) |
| Fibertex 350 w/ Black Matt Tissue | 70 deg C (Faced Surface) |

2. CORROSION RESISTANCE
   CSR Bradford Glass Wool and Fibertex Rock Wool are slightly alkaline and will not corrode mild steel. To maintain this condition, protection must be provided against contamination from external sources. Bradford products are pH tested in accordance with ASTM C871: 1989 and BS3958 part 5: 1986.

3. MOISTURE RESISTANCE
   Exposure of Bradford Glass Wool and Fibertex Rock Wool to an atmosphere of 50 deg C and 95% relative humidity for four days results in moisture absorption of less than 0.2% by volume. CSR Bradford Glass Wool and Fibertex Tock Wool Insulation become wet, full thermal efficiency will be restored on drying out.

4. COMPRESSION RESISTANCE
   CSR Bradford Glass Wool and Fibertex Rock Wool are resilient insulation materials, which readily recover to their nominal thickness after the removal of a normal compressive load.

5. FIRE RESISTANCE
   A special feature of all CSR Bradford mineral fibre insulation products is their superior fire performance. In addition to the early fire hazard indices, CSR Bradford Fibertex Rock Wool insulation is also deemed non-combustible in accordance with ASI 530.1, ASTM E84 and BS476.

6. SOUND TRANSMISSION LOSS
   CSR Bradford Glass Wool and Fibertex Rock Wool products are excellent sound insulation materials for the attenuation of noise across walls, floor/ceilings. Bradford Insulation offers a range of systems



B. Granite: ASTM C 615 and the National Building Granite Quarries Association's (NBGQA) "Specifications for Architectural Granite."

C. Marble: ASTM C 503.

D.

[redacted]

1) Unsanded grout mixture for joints 1/8 inch (3 mm) and narrower.

2) Sanded grout mixture for joints 1/8 inch (3 mm) and wider.

b. Mixture of Dry-Grout Mix and Latex Additive: Mixture of factory-prepared dry-grout mix and latex additive to comply with the following requirements:

1) Unsanded Dry-Grout Mix: Dry-set grout complying with ANSI A118.6, for materials described in H-2.3, for joints 1/8 inch (3 mm) and narrower.

2) Sanded Dry-Grout Mix: Commercial portland cement grout complying with ANSI A118.6, for materials described in H-2.1, for joints 1/8 inch (3 mm) and wider.

3) Latex Additive: Styrene butadiene rubber.

4) Latex Additive: Acrylic resin.

I. Provide anchors and attachments of type and size required to support interior stone facing and fabricated from materials as indicated below:

1. Stainless Steel: For anchors in direct contact with stone or penetrating plane of back of stone and where indicated, use stainless steel, ASTM A 666, Type 304.

2. Wire Tiebacks: 0.120-inch- (3.0-mm-) diameter stainless steel.

3. Direct-Mount Fastener System: Stainless-steel stone panel fasteners designed to be applied directly to wall surfaces or to wood or metal furring by fastening with self-drilling

M. Carefully inspect finished stone units at fabrication plant for compliance with requirements for appearance, material, and fabrication. Replace defective units.

N. Stone Countertop Fabrication: Fabricate stone countertops in sizes and shapes required to comply with requirements indicated, including details on Drawings and Shop Drawings.

1. Comply with recommendations of Marble Institute of America's (MIA) "Dimensional Stone--Design Manual IV."

2. Seams: Fabricate countertops in sections indicated for joining in field, with sealant-filled seams 1/16 inch (1.5 mm) in width.

3. Under counter Lavatories: Make cutouts for under counter lavatories using template or pattern furnished by lavatory manufacturer. Form cutouts to smooth, even curves with edges at right angles to top. Ease juncture of cutout edges with tops, and finish edges to match tops.

4. Fittings: Drill countertops for plumbing fittings, under counter soap dispensers, and similar items.

O. Mortar and Grout Mixes: Comply with referenced standards and with manufacturers' written instructions. Do not use admixtures.

1. Spotting Plaster: Stiff mix of molding plaster and water.

2. Mortar: Comply with ASTM C 270, Proportion Specification, Type N.

a. Pigmented Pointing Mortar: Select and proportion pigments with other ingredients to produce color required. Do not exceed pigment-to-cement ratio of 1:10, by weight.

3. Joint Grout: Comply with mixing requirements of referenced ANSI standards and manufacturer's written instructions.

**2.1 PRODUCT DELIVERY, STORAGE AND HANDLING**

A. Protect stone and all materials during storage and construction against moisture, soiling, staining, and physical damage.

B. Handle stone to prevent chipping, breaka

D. Set stone to comply with requirements indicated on Drawings and Shop Drawings. Install anchors, supports, fasteners, and other attachments indicated or necessary to secure interior stone facing in place.

E. Provide expansion, control, and pressure-relieving joints of widths and at locations indicated.

1. Sealing expansion and other joints is specified in Division 7 Section "Joint Sealants."

2. Keep expansion joints free of plaster, grout, and other rigid materials.

F. Erect interior stone facing and trim plumb and true with uniform joint widths and accurately aligned. Use temporary shims to maintain joint width. Remove shims before pointing or grouting.

G. Set interior stone facing units firmly against setting spots located at anchors and spaced a maximum of 18 inches (450 mm) apart over back of unit, but no less than 1 spot per 2 sq. ft. (0.18 sq. m), unless otherwise indicated.

1. Moisture Exposure: Use portland cement mortar for setting spots where stone is applied to inside face of exterior walls and at other locations where stone or cavity will be exposed to moisture.

H. Minimum Anchors: Provide a minimum of 4 anchors per stone up to 12 sq. ft. (1.1 sq. m) in face area, plus a minimum of 2 additional anchors for each additional 8 sq. ft. (0.7 sq. m).

1. Provide a minimum of 2 anchors per piece for stone trim up to 48 inches (1200 mm) in length,

plus 1 additional anchor for each additional 24 inches (600 mm) of length.

I. Stone Base: Set stone base by adhering to interior stone facing with water-cleanable epoxy adhesive. Hold adhesive back from exposed edge of joint to allow for grouting.

J. Stone Base at Walls without Interior Stone Facing: Set stone base by adhering to plywood backing with water-

B. Clean interior stone facing not less than 6 days after completion of grouting and pointing, using clean water and soft rags or stiff-bristle fiber brushes. Do not use wire brushes, acid-type cleaning agents, cleaning compounds with caustic or harsh fillers, or other materials or methods that could damage stone.

C. Protect stone surfaces, edges, and corners from construction damage. Use securely fastened untreated wood, plywood, or heavy cardboard to prevent damage.

**3.2 PRODUCTS**

Provide stone from a single quarry for each variety of stone requires.

1. Match Architects and Interior Designers samples for variety, color, finish and other stone characteristics relating to aesthetic effect.

2. Provide stone that is free of cracks, seams and scars impairing structural integrity or function.

**3.3 GRANITE**

A. Minimum Standards:

1. Conform to ASTM C615 for minimum acceptable physical qualities of density (26.50 kg/m2), absorption (0.4%), compressive strength (131 MPa) and modulus of rupture (10.34 MPa) and to National building Granite Quarries Association (NBGQA) Specifications.

B. Finishes:

1. Provide polished, honed, sandblasted, and flamed finishes for locations as indicated.

C. Quality Control:

1. Granite shall be as indicated on the drawings, matching Architect's samples. Flaws and imperfections shall not be greater in size or in average number per square meter than in Architect's samples. Color, grain, and variegation shall be within the limits established by Architect's samples. All pieces shall be cut and fabricated with correct grain direction, as chosen by Architect.

D. Available Sources: Subject to compliance with requirements provide granite from the following source;

1. Cold Spring Granite Company U.S.A.
202 South Third Avenue
Cold Spring, Minnesota 56320 U.S.A.

E. Submit shop drawings of wall panels with fixing system to reinforced concrete or blockwork.

F. Calculations: Provide calculations signed by a registered professional engineer, as approved by Architect, for engineering design of all stonework.

**END OF SECTION**

# SECTION 09900

# PAINTING

## PART 1 - GENERAL

### 1.1 WORK INCLUDED

A. Painting and finishing of exposed interior and exterior items and surfaces.

1. Specified surface preparation, priming and coats of paint are in addition to shop-priming and surface treatment specified under other sections of work.

2. Paint exterior structural and mechanical components on roofs as well as sloping roof components.

3. Paint car park masonry stair enclosures both inside and outside surfaces.

4. Paint metal stairs and handrails, with exception of stair treads.

5. Field painting of doors.

6. Paint exterior face of pre-cast concrete panels and any exposed to view interior faces.

7. Paint exposed plaster work.

8. See Finish Schedule for additional extent of painting required.

B. Field painting of exposed bare and covered pipes, of, ofing ofre, nd2(i)8(p)-4(o)8(n)-4roopla,ping roof

5. Heads of through-bolts on door mounted hardware.
6. Aluminium trims for door smoke gaskets.
7. Hardware labeled "USP" in hardware specification.
8. Roof overflows scuppers and mounting plates.
9. Guardrails.
10. Ladders.
11. Metal bollards/Plumger
12. Aluminium reveals in plaster & drywall. Paint to match color & finish of adjacent wall or ceiling.
13. Fire alarm bells on building exteriors.
14. Garage concrete and concrete masonry surfaces.
15. Exposed pipes hangers & other accessories.

**1.4 SURFACES NOT TO BE PAINTED**

A. Pre-finished items including finished metal surfaces.

B. Walls or ceilings in concealed areas and generally inaccessible areas.

1. Walls and ceilings in foundation spaces, furred areas, utility tunnels, pipe spaces, duct shafts, elevator shafts.

C. Equipment, piping and ductwork in mechanical spaces and machine rooms.

D. Moving parts of operating mechanical and electrical units and labels.

E. Code-Required Labels: Keep equipment identification and fire rating labels free of paint.

F. Plastic components of smoke stops and weatherstripping at doors.

**1.5 SUBMITTALS**

A. Product Data: Manufacturer's technical information, including paint label analysis and application instructions for each material.

1. Certification: Provide certificate from each manufacturer stating material is top quality line and suitable for intended use on this Project.

2. Paint Schedule: Show proposed materials under each system, indicate manufacturer's designation.

B. Samples: Submit samples for review of color and texture; provide list of material and application for each coat of each finish sample.

1. Provide samples of each color and material with texture to simulate actual conditions, on hardboard.

2. Provide minimum 200mm x 250mm samples of wood finishes on actual wood surfaces; label and identify each as to location and application.

3. Provide samples of concrete masonry (maximum 100mm square) defining filler, prime and finish coats.

4. Duplicate painted finishes of approved samples on actual wall surfaces and components for approval prior to commencing work.

    a. Size: Minimum 100 ft (10 sq.m.), located where approved.
    b. Components: One full component as directed.
    c. Simulate finished lighting conditions for review.

5. Ferrous Metals: Clean ungalvanized ferrous-metal surfaces that have not been shop coated; remove oil grease, dirt, loose mil scale, and other foreign substances. Use solvent or mechanical cleaning methods that comply with the Steel Structures Painting Council's (SSPC) recommendations.

    a. Touch up bare areas and shop-applied prime coats that have been damaged, Wire-brush, clean with recommended by paint manufacturer, and touch up with the same primer as the shop coat.

6. Galvanized Surfaces: Clean galvanized surfaces with non-petroleum-based solvents so surface is free of oil and surface contaminants. Remove pre-treatment from galvanized sheet metal fabricated from coil stock by mechanical methods.

**1.6 DELIVERY, STORAGE AND HANDLING**

A. Deliver materials to job site in original, new and unopened packages and containers bearing manufacturer's name and label, with:

[redacted]

2. Where exposed items or surfaces are not specifically mentioned in Schedules, paint same as adjacent similar materials or areas.

3. Do not paint over dirt, rust, scale, grease, moisture, scuffed surfaces, or conditions detrimental to a durable paint film.

B. Perform preparation and cleaning procedures in accordance with paint manufacturer's instructions and as specified for substrate condition.

C. Remove hardware, accessories, and items in place and not to be painted, or provide protection prior to surface preparation and painting; after painting reinstall removed items.

D. Clean surfaces before applying paint; remove oil and grease prior to mechanical cleaning; program cleaning so contaminants from cleaning process do not fall onto wet, newly painted surfaces.

E. Cementitious Materials: Prepare by removing efflorescence, chalk, dirt, grease, oils, and by roughening as required to remove glaze.

1. Determine alkalinity and moisture content of surfaces to be painted.

2. If surfaces are found to be sufficiently alkaline to cause blistering and burning of finish paint, neutralize before application of paint.

3. Do not paint over surfaces where moisture content exceeds manufacturer's printed directions.

4. Concrete Floors: Clean using a commercial solution of muriatic acid, or other etching cleaner prior to painting; flush floor with clean water to neutralize acid, and allow to dry before painting.

F. Wood: Clean wood surfaces of dirt, oil, or other foreign substances; sandpaper smooth surfaces exposed to view, and dust off.

1. Scrape and clean seasoned knots and apply thin coat of recommended knot sealer, before application of priming coat.

2. Prime, stain, or seal wood required to be job-painted immediately upon delivery to job; prime edges, ends, faces, undersides, and backsides of wood.

3. After priming, fill holes and imperfections in finish surfaces with putty or plastic wood-filler; sandpaper smooth when dry.

G. Ferrous Metals: Touch up shop-applied prime coats wherever damaged or bare, using same type of primer.

1. Bare Surfaces: Clean surfaces which are not galvanized or shop-coated, of oil, dirt, loose mill scale and other foreign substances by solvent or mechanical cleaning.

2. Galvanized Surfaces: Clean free of oil and surface contaminants, using non-petroleum based solvent; acid wash where necessary to assure proper adhesion of finishes.

H. Mix painting materials in accordance with manufacturer's directions.

I. Store materials in tightly covered containers; maintain containers used in storage, mixing and application of paint in a clean condition, free of foreign materials and residue.

J. Stir materials before application to produce mixture of uniform density, and stir as required during application; do not stir surface film into materials, if necessary, strain maorage.

1. Apply additional coats when stains or blemishes show through final coat, until paint is a uniform finish, color and appearance.

2. Provide extra attention to assure dry film thickness at corners and crevices is equivalent to that of flat surfaces.

3. Paint surfaces behind movable equipment and furniture same as similar exposed surfaces; paint surfaces behind permanently-fixed equipment and furniture with prime coat only.

4. Paint interior surfaces of ducts, where visible through registers or grilles, with a flat, non-specular black paint.

5. Paint back sides of access panels and removable or hinged covers to match exposed surfaces.

6. Finish exterior doors on tops, bottoms and side edges same as exterior faces.

7. Sand lightly between each succeeding enamel or varnish coat.

B. Scheduling Painting: Apply first coat to surfaces that have been cleaned, pre-treated or prepared for painting as soon as practicable after preparation.

1. Allow time between successive coatings to permit proper drying.

2. Do not recoat until paint feels firm and does not deform or feel sticky under moderate thumb pressure

C. Minimum Coating Thickness: Apply materials at not less than manufacturer's recommended spreading rate, to establish a total dry film thickness as recommended by coating manufacturer.

D. Prime Coats: Apply to items not previously primed; recoat primed and sealed surfaces where there is evidence of suction spots or unsealed areas in first coat.

E.

2. Exterior Concrete & Plaster:Textured finish as selected by the Architect (Use Decrea/Granitone)

3.

**SECTION 09910**

**POLYURETHANE WATERPROOF COATING SYSTEM**

**PART 1 - Specifications for parking levels**

**1.1 WORK INCLUDED**

Painting and finishing of all vehicular and pedestrian traffic areas at parking level.

**1.3 SURFACES TO BE PAINTED**

A. Except where natural finish of material is specifically noted as surface not to be painted, paint all exposed surfaces that are not otherwise finished.

B. Paint exterior surfaces that are noted to be painted. Paint mechanical components on roofs.

**1.5 SUBMITTALS**

A. Product Data: Manufacturer's technical information, including label analysis and application instructions for each material.

1. Certification: Provide certificate from each manufacturer stating material is top quality line and suitable for intended use on this Project.

2. Coating Schedule: Show proposed materials under each system, indicate manufacturer's designation.

B. Samples: Submit samples for Architect's approval.

**1.6 DELIVERY, STORAGE AND HANDLING**

A. Deliver materials to job site in original, new and unopened packages and containers bearing manufacturer's name and label, with:

1. Product name
2. Product description (generic product classification)
3. Manufacturer's name, stock number and date manufactured.
4. Application instructions

B. Store materials in tightly covered containers; maintain free of foreign materials and residue.

C. Protect from freezing and potential fire hazards.

**1.7 SITE CONDITIONS**

A. Do not apply paint in rain or mist; or when relative humidity exceeds 85 percent; or to damp or wet surfaces

B. Do not paint over dirt, rust slave, grease, moisture, souffed dreaves.





[redacted]

1. Provide samples of each color and material with texture to simulate actual conditions, on hardboard.
2. Provide samples of concrete masonry (maximum 100mm square) defining filler, prime and finish coats.
3. Duplicate coated finishes of approved samples on actual wall surfaces and components for approval prior to commencing work.

    a. Size: Minimum 100 ft (10 m²), located where approved.
    b. Components: One full component as directed.
    c. Simulate finished lighting conditions for review.

**1.5 DELIVERY, STORAGE AND HANDLING**

A. Deliver materials to job site in original, new and unopened packages and containers bearing manufacturer's name and label, with:

    1. Name of material, color and sheen.

    2. Manufacturer's name, stock numbers and dates of manufacture.

    3. Contents by volume.

    4. Application instructions.

B. Store materials in tightly covered original containers; maintain free of foreign materials and residue.

C. Protect from freezing and from excessive heat above 32˚C.

**1.6 SITE CONDITIONS**

A. Apply water-base coats when temperature of surfaces and surrounding air are between 64˚F and 90˚F (18˚C and 32˚C).

B. Do not apply coat in rain or mist; or when relative humidity exceeds 85%; or to damp or wet Surfaces.

C. Coating may be continued during inclement weather if areas to be coated are enclosed and heated or cooled within temperature limits specified.

D. Do not coat over dirt, rust, grease, or moisture.

**PART 2 - PRODUCTS**

**2.1 ACCEPTABLE MANUFACTURERS**

A. Provide top line commercial products of one of the following or equal as approved by Architect:
    1. Boysen
    2. Davies
    3. Or approved equals

**2.2 MATERIALS**

A. Definition: "Coatings" as used herein means coat, including primers, emulsions and sealers, whether used as primer, intermediate or finish coats.

B.

b. Upon request from other trades furnish information on characteristics of finish materials proposed for use.
c. Provide barrier coats over incompatible primers or remove and re-prime as required.
d. Notify Architect in writing of any anticipated problems in use of specified coating systems with substrates primed by others.

C. Material Quality: Materials not bearing manufacturer's identification, as a best-grade product shall not be acceptable.

1. Use of proprietary names in color selection is not intended to imply exclusion of equivalent products of other manufacturers.
2. Provide first coat materials in a different colour to final coat to aid correct coverage rates and film thickness. For porous substrates, strictly follow manufacturer's recommendations for dilution of primer
3. Provide finish coats capable of being washed with mild detergent without loss of color, sheen, or pigments.
4. Lead/Solvent Content: All coatings shall be lead free and water-based.
5. Fire Certification: All coatings shall comply with the requirements of BS 476 Pts 6 & 7 in relation to Surface Spread of Flame.
6. Crack-Bridging: All coatings shall be elastomeric in nature and capable of bridging cracks of up to 1mm in width.
7. Water Vapour Permeability: All coatings shall have a definable and tested water vapour transmission rate of at least 19.0 gm/m2/day
8. Anti-Carbonation: All coatings shall have a definable and tested CO2 diffusion rate

G. Mix coating materials in accordance with manufacturer's directions.

H. Store materials in tightly covered containers; maintain containers used in storage, mixing and application of coating in a clean condition, free of foreign materials and residue.

I. Stir materials before application to produce mixture of uniform density, and stir as required during application; do not stir surface film into materials, if necessary, strain material before using.

**3.2 APPLICATION**

A. Apply coatings in accordance with manufacturer's directions; use applicators and techniques best suited for substrate and type of material being applied.

1. Apply additional coats when stains or blemishes show through final coat, until coat is a uniform finish, color and appearance.
2. Provide extra attention to assure dry film thickness at corners and crevices is equivalent to that of flat surfaces.
3. Coat surfaces behind movable equipment and furniture same as similar exposed surfaces; coat surfaces behind permanently fixed equipment and furniture with prime coat only.
4. Coat interior surfaces of ducts, where visible through registers or grilles, with a flat, non-specular black coating.
5. Coat backsides of access panels and removable or hinged covers to match exposed surfaces.

B. Scheduling Coating: Apply first coat to surfaces that have been cleaned, pre-treated or prepared for coating as soon as practicable after preparation.

1. Allow time between successive coatings to permit proper drying.
2. Do not recoat until coating feels firm and does deform or feel sticky under moderate thumb pressure.

C. Minimum Coating Thickness: Apply materials at not less than manufacturer's recommended spreading rate, to establish a total dry film thickness as recommended by coating manufacturer.

D. Primer Coats: Apply to items not previously primed; recoat primed and sealed surfaces where there is evidence of suction spots or unsealed areas in first coat.

E. Finish Coats provide even texture; leave no laps, irregularity in texture, skid marks, or other surface imperfections.

1. Opaque Finishes: Provide opaque, uniform finish, color and coverage; cloudiness, spotting, holidays, brush marks, runs, sags, ropiness or other surface imperfections are not acceptable.

F. Completed Work: Match approved samples for color, texture and coverage.

**3.3 FIELD QUALITY CONTROL**

A. Owner reserves right to invoke material testing procedure at any time during field coating.

B. If test results show material being used does not comply with specified requirements, Contractor may be directed to remove non-complying work, pay for testing, and recoat surfaces.

**3.4 COATING SCHEDULE**

A. Exterior Work: Provide following coating systems.

1. Exterior Concrete & Plaster: Textured or smooth finishes as selected by the Architect.
2. Gypsum Wallboard at exterior exposed areas (if any): Flat sheen.
   a. 1st Coat - Primer
   b. 2nd and 3rd Coat - Exterior acrylic water-based coating.
3. Ferrous Metals: Clean ungalvanized ferrous-metal surfaces that have not been shop coated; remove oil grease, dirt, loose mil scale, and other foreign substances. Use mechanical cleaning methods that comply with the Steel Structures Painting Council's (SSPC) recommendations.
   a. Touch up bare areas and shop-applied primer coats that have been damaged. Wire-brush;

clean with materials recommended by coat manufacturer; and touch up with the same primer as the shop coat.

4.

**SECTION 09950**

**MASSIVE ALUMINUM COMPOSITE WALL SYSTEM**

## 1. General

PROPOSED GALERIES TOWER MANILA
NATIVIDAD LOPEZ ST. COR. CABRAL ST. MANILA

ASYA DESIGN PARTNER
GRAND TAIPAN LAND DEVELOPMENT INC.

**SECTION 10170**

**TOILET PARTITIONS**

**PART 1 - GENERAL**

1.1 SUMMARY:

A. Extent of toilet partitions is indicated on drawings.

B. Types of toilet compartments include:

1. Solid compact laminate

C. Styles of toilet compartments include:

1. Floor-anchored.

D. Styles of privacy screens include:

1. Floor anchored

E. Toilet accessories, such as toilet paper holder, grab bars, purse shelves, are specified elsewhere in Division 10.

1.2 SUBMITTALS:

A. Product Data: Submit manufacturer's detailed technical data for materials, fabrication, and installation, including catalog cuts of anchors, hardware, fastenings, and accessories.

B. Shop Drawings: Submit shop drawings for fabrication and erection of toilet partition assemblies not fully described by product drawings, templates, and instructions for installation of anchorage devices built into other work.

C. Samples: Submit full range of color samples for each type of unit required. Submit 150mm x 150mm square samples of each color and finish on same substrate to be used in work, for color' verification after selections have been made.

1.3 QUALITY ASSURANCE:

A. Field Measurements: Take field measurements prior to preparation of shop drawings and fabrication where possible, to ensure proper fitting of work, However, allow for adjustments within specified tolerances where ever taking of field measurements before fabrication might delay work.

B. Coordination: Furnish inserts and anchorages which may be built into other work for installation of toilet partitions and related work; coordinate delivery with other work to avoid delay.

**PART 2 - PRODUCTS**

2.1 MANUFACTURERS:

1. G.S Go Bros Inc. 2. Jebsen 3. Multi-Rich 4. Or approved equal

A. Available Manufacturers: Subject to compliance with requirements, manufacturers offering products which may be incorporated in the work include, the following:

1. Bescube fresh colour

2.2 MATERIALS:

2.3 GENERAL: Provide materials which have been selected for surface flatness and smoothness. Exposed surfaces which exhibit pitting, seam marks, roller marks, stains, discolorations, telegraphing of core material,

B. Floor-Supported Partitions: Adjustable stand with having not more than 25mm penetration into structural floor, unless otherwise recommended by partition manufacturer. Level, plumb, and tighten installation with devices furnished . Hang doors and adjust so that tops of doors are level with tops of pilasters when doors are in closed position.
C. Screens: Attached with concealed anchoring devices, as recommended by manufacturer to suit supporting structure. Set units to provide support and to resist lateral impact.

3.2 ADJUST AND CLEAN:
A. Hardware Adjustment: Adjust and lubricate hardware for proper operation. Set hinges on in swinging doors to hold open approximately 30 degrees from closed position when unlatched. Set hinges on out swinging doors (and entrance swing doors) to return to fully closed position.
B. Clean exposed surfaces of partition systems using materials and methods recommended by manufacturer, and provide protection as necessary to prevent damage during remainder of construction period.

**END OF SECTION**



## PART 2 - PRODUCTS

### 2.1 ACCEPTABLE MANUFACTURERS

A. The following manufacturers are listed to indicate quality of products desired.

1. Metrotech Steel Industrial Inc
2. Lecsteel
3. Doortech
4. Rapid Forming
5. Or approved equal

**2.2** TYPE (Refer plan) For Architect's Approval.

A. Steel Wall Louvers:

1. Louver Type:

a. Refer plan .

### 2.3 FABRICATION

A. Louvers: Manufacturer's standard fabrication for types specified.

B. Screen for Exterior Louvers: Minimum 1.5mm diameter wire, 12mm interwoven square mesh.

1. Aluminum steel wire.

2. Match louver.

C. Accessories: Fabricate sill extension, flashings, wall anchors, structural supplementary sub-framing,

G. Join frame members and louver blades by welding; maintain equal blade spacing, including separation between blades and frame head and sill; maintain uniform appearance.

1.

PROPOSED GALERIES TOWER MANILA
NATIVIDAD LOPEZ ST. COR. CABRAL ST. MANILA

ASYA DESIGN PARTNER
GRAND TAIPAN LAND DEVELOPMENT INC.

F. Certificates: In lieu of laboratory test reports when permitted by the Architect, submit the manufacturer's certification that vinyl-fabric-faced cork tack board materials furnished comply with requirements specified for flame spread ratings.

## 1.4 QUALITY ASSURANCE

A. Installer Qualifications: Engage an experienced installer who is an authorized representative of the building directory manufacturer for installation and maintenance of the manufacturer's product.

1. The Installer shall be acceptable of providing replacement message strips within 10 working days of receipt of an order.

B. Fire Performance Characteristics: Provide vinyl-fabric-faced tackboards with surface burning characteristics indicated below., as determined by testing assembled materials

## 2.2 MATERIALS

A. Aluminum Extrusions: Provide manufacturers standard extruded aluminum sections with not less than the strength and durability properties specified in ASTM B 221 for 6063-T5 alloy.

B. Clear Float Glass: Provide clear float glass, thickness as indicated, complying with the requirements of ASTM C 1036, Type I. Quality q3.

C. Tempered Glass: Provide clear, tempered safety glass complying with the requirements of ASTM C 1048, Kind FT. Condition A, Type I, Class 1 - transparent.

D. Natural Cork Tackboard: Provide single-layer 25mm thick seamless, compressed fine-grain bulletin board quality natural cork sheet face sanded for natural finish, complying with MSMIL-C15116, Type II.

1. Backing: Factory-laminated cork face sheet to 6mm-thick hardboard backing.

## 2.3 BULLETIN BOARDS

A. Bulletin Boards: Provide the manufacturer's standard surfaced-mounted, top-illuminated bulletin board. The assembly shall consist of the bulletin board housing with perimeter frame, sides, and back, a header panel, top-illumination system, tackable surface of material indicated, operable transparent covers with hardware, and other features indicated. Provide graphics for header panels and other designs in the letter style, size, spacing , and arrangement indicated.

1. Perimeter Frame and CoverDesign: Provide extruded aluminum perimeter frame of the profile indicated. Provide sliding glass doors glazed with 6mm thick tempered glass, with exposed edges seamed to eliminate cutting hazard.

a. Operating Hardware: Provide extruded aluminum top and bottom track, extruded aluminum bottom shoes, nylon rollers, rubber top guides, rubber bumpers, grooved finger pulls, and adjustable lock.

2. Header Panels: Provide opaque acrylic sheet header panels with letters and graphics applied by the silk-screen printing process.

3. Illumination System: Provide a concealed top-lighting system consisting of strip fluorescent fixtures. Include lamps and Internal wiring with single concealed electrical connection to the building system. Coordinate electrical characteristics with those of the power supply provided.

a. Ballasts: Provide low-temperature, high power-factor, low

B. Hardware: Provide building directories and bulletin boards with the following hardware:

1. Hinges: Concealed pivot hinges.
2. Lock: Furnish each cover with the manufacturer's standard lock; key all locks alike. Furnish 2 keys per lock.

**2.5 FABRICATION**

A. General: Fabricate bulletin boards to requirements indicated including dimensions, design, the thickness and finish of materials. Use metals and shapes of thickness, with reinforcing, if needed, to produce flatness, free of "oil canning," and to impart strength for size, design, and application indicated.

1. Fabricate perimeter and cover frames with reinforced corners, mitred to a hairline fit, with no exposed fasteners.

2. Hardware for Covers: Equip covers with the manufacturer's standard hardware of the type indicated.

**2.6 FINISHES**

A. General : Comply with NAAMM" Metal Finishes Manual" for finish designations and application recommendations.

B. Colors: Where name strips, header panel, or other items, other than frames or glazing

# SECTION 10522

# FIRE EXTINGUISHERS, CABINETS, AND ACCESSORIES

## PART 1 - GENERAL

### 1.1 RELATED DOCUMENTS

A. Drawings and general provisions of Contract, including General and Supplementary Conditions and Division 1 Specification Sections, apply to this Section.

### 1.2 SUMMARY

A. This Section includes the following:

1. Fire extinguishers.
2. Fire extinguisher cabinets.
3. Mounting brackets.

B. Related Sections: The following sections contain requirements that relate to this section:

1. Division 4 Section" Stonework" for cabinets with stone faced doors and fronts set in stone cladwalls.
2. M&E Consultants specification "Fire Protection" for fire hose cabinets and valve cabinets.
3. M&E Consultants specification section "Fire Protection" for fire protection systems.
4. Interior design specifications for cabinets exposed to view in front-of-house public spaces.

### 1.3 SUBMITTALS

A. General: Submit the following in accordance with Conditions of Contract and Division 1 Specification Sections.

B. Product data and manufacturers literature for each type of product specified. For fire extinguisher cabinets include rough-in dimensions, details showing mounting methods, relationships of box and trim to surrounding construction, door hardware, cabinet type and materials, trim style, door construction, panel style, and materials.

C. Samples for initial selection purposes in form of manufacturer's color charts showing full range of colors available for those units with factory-applied color finishes.

D. Samples for verification purposes of each type of metal finish required, prepared on metal samples of same thickness and alloy indicated for final unit of Work. Where finishes involve normal color and texture variations, include sample sets showing full range of variations expected.

E. Samples for verification purposes of each type of special cladding finish required prepared on metal and plywood mounted samples of stone type in same thickness as designated for adjacent wall or unit of work.

### 1.4 QUALITY ASSURANCE

A. Single-Source Responsibility: Obtain fire extinguishers and cabinets from one source from a single manufacturer.

B. Coordination: Verify that fire extinguisher cabinets are sized to accommodate fire extinguishers of type and capacity indicated.

C. UL-Listed Products: Fire extinguishers UL-listed and bear UL "Listing Mark" for type, rating, and classification of extinguisher.





F. Identify fire extinguisher in cabinet with lettering spelling "FIRE EXTINGUISHER" applied to door. Provide lettering to comply with requirements

1. Organic Coating: Thermosetting modified acrylic enamel primer/topcoat system complying with AAMA 603.8 except with minimum dry film thickness 1.5 mils, medium gloss.
2. Color: Match Architect's sample.

**2.7 STEEL FIRE EXTINGUISHER CABINET FINISHES**

A. Surface Preparation: Solvent-clean surfaces in compliance with SSPS-SP 1 to remove dirt, oil, grease, and other contaminants that could impair paint bond. Remove mill scale and rust, if present, from uncoated steel in compliance with SSPC-SP 5 (White Metal Blast Cleaning) or SSPC-SP 8 (Pickling).

B. Baked Enamel Finish: Immediately after cleaning and pre-treatment, apply manufacturer's standard 2-coat baked enamel finish consisting of prime coat and thermosetting topcoat. Comply with paint manufacturer's instructions for application and baking to achieve a minimum dry film thickness of 2.0 mils.

1. Color and Gloss: Match Architect's sample.
   (a) Exterior of cabinet except for those surfaces indicated to receive another finish.
   (b) Interior of cabinet.

**2.8 STAINLESS STEEL FIRE EXTINGUISHER CABINET FINISHES**

A. Remove or blend tool and die marks and stretch lines into finish.

B. Polished and Buffed Finish: Fine grit followed by buffing.

C. Satin, Reflective, Directional Polish: AISI No. 7 finish.

1. Passivity and rinse surfaces after polishing. Remove embedded foreign matter and leave surfaces chemically clean.

**PART 3 - EXECUTION**

**3.1 PREPARATION**

A. Examine substrates and conditions where fire extinguisher cabinets are to be installed.
B. Beginning installation signifies acceptance of conditions.

**3.2 INSTALLATION**

A. Install items included in this section in locations and at mounting heights indicated, or if not indicated, at heights to comply with applicable regulations of governing authorities.

1. Prepare recesses in walls for fire extinguisher cabinets as required by type and size of cabinet and style of trim and to comply with manufacturer's instructions.
2. Securely fasten mounting brackets and fire extinguisher cabinets to structure, square and plumb, to comply with manufacturer's instructions.
3. Where exact location of surface-mounted cabinets and bracket-mounted fire extinguishers is not indicated, locate as directed by Architect.

**END OF SECTION**

**SECTION 10700**

**ARCHITECTURAL LIGHTWEIGHT INTERIOR PRECAST**

## PART 1 – GENERAL

### 1.1 INTRODUCTION AND BRIEF HISTORY OF ARTY WORKS BUILDERS CORP.

### 1.2 SUMMARY

A. Light-weight Precast unit construction, complete with mortar, reinforcement and anchorage.

1. Extent of work is shown on the drawings and partition schedule.
2. Cutting and fitting for work of other trades is scheduled as work of this section.

B. Products Installed not Furnished: Building in items supplied by other trades or suppliers.

### 1.3 QUALITY ASSURANCE

A. Testings: Conforms to requirement as per attached reports.

A.1 Pull-out Test
A.2 Sound Test
A.3 Fire Test
A.4 Compressive Strength Test
A.5 Moisture & Absorption Test
A.6 Structural Evaluation

### 1.4 SUBMITTALS

A. Shop Drawings: Provide for reinforcing; show bar schedules, diagrams of bent bars, ties and arrangements and assemblies. All reinforcing shall meet applicable local requirements, and engineering of same is responsibility of the contractor.

B. **Product Data:** Provide manufacturer's certificate concrete masonry units and reinforcing steel conform to specified standards.

### 1.5 SITE CONDITIONS

A. Provide temporary bracing during erection of masonry work, maintain in place until building structure provides permanent bracing.

B. Delivery & Storage: Delivery of Precast Panels in good condition & staging area should be provided. Delivery of adhesive and other cementitious materials to the site in unbroken bags, or other appropriate containers, plainly, marked and labelled with manufacturer's names and brands. Store cementitious materials in dry, weathertight sheds or enclosures and handle so as to prevent entry of foreign materials and damaged by water or dampness. Handle masonry units with care to avoid chipping and breakage. Protect masonry material from damage, and except for sand, keep dry until use.

## PART 2 - PRODUCTS

### 2.1 MANUFACTURERS

Subsequent to compliance with requirements manufacturers offering products that may be incorporated in the work include the following:

A. Macro Industrial Packaging Product Corp,
B. Arty Works

C. Starken
D. Or approved equal

## 2.2 MATERIALS

A. Hollow Non-Load Bearing Units: ASTM C-39 made with Light weight aggregates, and with ultimate compressive strength of 500 psi.

B. Special Shapes: Provide special shapes as closures, header units, and jamb units as necessary to complete the work. Special shapes shall conform to the requirements for the units with which they are used. Shapes shall be cut on site as required.

## PART 3 – EXECUTION

## 3.1 PREPARATION

A. Lifting of Precast Panels to designated working area.
B. Zocalo recommended for T & B perimeter at least 20 cm.
C. Ensure items built in by other trades are properly located and sized.
D. Establish lines, levels and coursing, protect from disturbance.
E. Clean surfaces to receive masonry free from dirt, debris, and laitance.

## 3.2 INSTALLATION & METHODOLOGY

1. Drill 2 pieces of 10mm dowels into column or wall. Use slurry as an adhesive.
2. Layout and chip the panels for utility fixtures for plumbing, electrical, ducting etc. using grinder, cut the arty wall according to layout.
3. Put slurry to the area or lay out that the Arty Panels where it will be installed.
4. Provide a space that will just fit a 10mm dowels drilled in one side of the Arty Panels before installing it in place, can be cut using grinder.
5. Seal the area provided for the dowels using slurry.
6. Lock the bottom edge of the Arty Panels by drilling a hole on the slab boring a 10mm Dowel in L-shaped form.
7. Apply Slurry for the next Arty wall.
8. After placing the next Arty panel, lock their joint with a U-shaped 10mm dowel.
9. Place the pipes then restore the areas using installation slurry or mortar.
10. Repeat all steps to complete the whole span. Check using levelling bar.
11. After filling with slurry, attached the Anti-cracking fiber mesh in 50mm to the panel.
12. Paint can be directly laid on the wall panels with cement paste, also the wallpaper and tiles can be covered directly without scraping.

## 3.3 CLEANING

A. Remove excess mortar and smears upon completion of masonry work.
B. Point or replace defective mortar, match adjacent work.
C. Clean soiled surfaces using a non-acidic solution which will not harm Precast or adjacent materials, consult precast manufacturer for acceptable cleaners.
D. Use non-metallic tools in cleaning operations.
E. Protection: Protect work which may be damaged, stained or discoloured during cleaning operations.
F. Pointing: Upon completion of precast work, cut out defective mortar joints and truck joints and all holes solidly with mortar.
G. Cleaning: Clean exposed precast surfaces with clear water and still fiber brushes and rinse with clean water. Where stains, mortar, or other soil remain, continue cleaning as follows: Clean precast surfaces by scrubbing with warm water and soap and rinsing thoroughly with clean water. Restore damaged, stained, and discoloured work to its original conditions or replace with new work.

**END OF SECTION**

# SECTION 10810

# TOILET, FITTINGS & ACCESSORIES

## PART 1 - GENERAL

### 1.1 DESCRIPTION OF WORK

A. Extent of each type of toilet accessory is indicated on drawings and schedules or as described herein.

B. Male and female toilets, maids room toilets at apartments.

C. Types of toilet accessories required include the following :

1. Soap dispensers wall and surface mounted
2. Mirrors
3. Urinals
4. Lavatories (wash hand basins)
5 Flush valves
6. Lavatory faucets
7. Slop sinks
8. Toilet tissue dispensers
9. Floor drains
10. Wall faucets
11. Hook for each water closet/cubicle
12. Toilet bowl / water closet

### 1.2 QUALITY ASSURANCE

A. Urinals, and lavatory faucets shall function manually as specified.

B. Inserts and Anchorages : Furnish inserts and anchoring devices which must be set in concrete or built

## PART 2 - PRODUCTS

### 2.1 ACCEPTABLE MANUFACTURERS

A. Subject to compliance with requirements, manufacturers offering toilet accessories which may be incorporated in the work include, but are not limited to, the following:

1. HCG 2. Kuysen 3. American Standard 4. Or approved equal

### 2.2 MATERIALS, GENERAL

A. Stainless Steel: AISI type 302/304, with polished No. 8 mirror polished, 22 gage (0.85mm) minimum, unless otherwise indicated.

B. Brass: Leaded and unleaded, flat products, FS QQ-B-613; Rods, shapes, forgings, and flat products with finished edges, FS QQ-B-626.

C. Sheet Steel: Cold-rolled, commercial quality ASTM A 366, 20-gage (1mm) minimum, unless otherwise indicated. Surface preparation and metal pretreatment as required for applied finish.

D. Galvanized Steel Sheet: ASTM A 527, G60.

E. Chromium Plating: Nickel and chromium electro-deposited on base metal, ASTM B 456, Type SC 2.

F. Mirror Glass: FS DD-G-451, Type I, Class 1, Quality q2, 6mm thick, with silver coating, copper protective coating, and non-metallic paint coating complying with FS DD-M-411.

G. Galvanized Steel Mounting Devices: ASTM A 153, hot-dip galvanized after fabrication.

1. Fasteners: Screws, bolts, and other devices of same material as accessory unit or of glavanized steel where concealed.

### 2.3 TOILET TISSUE DISPENSERS

A. Single-Roll Dispenser w/cover : Size to accommodate single roll of core type tissue to 125mm diameter.

c. HGC Earth Package close-coupled round front water closet with hand wash (CS4332H) for Maid's Room

2. Bathtub: as specified hereunder or equivalent

a. HGC Legato acrylic bathtub 1.5m with grab bar (F8250CB) with wall mounted single lever bath mixing faucet (BF6821C) and trip lever with pop-up drain system for Master's Bedroom

3. Urinal: Vitreous china wall mounted flush valve unit furnished complete with all required accessories, compatible with Legato B series. Verify Architect

4. Lavatory

a. HGC Legato B White Italian design under the counter lavatory (L4056) complete with BA111 soap holder and BA118 paper holder for Master's Bedroom

b.

C. Recessed Toilet Accessories, General: Except where otherwise indicated, fabricate unit of all welded construction, without mitered comers. Hang doors or access panels with full-length stainless steel piano hinge. Provide anchorage which is fully concealed when unit is closed.

## PART 3 - EXECUTION

### 3.1 INSTALLATION

A. Install toilet accessory units in accordance with manufacturers' instructions, using fasteners which are appropriate to substrate and recommended by manufacturer to unit. Install units plumb and level, firmly anchored in locations and at heights indicated.

### 3.2 ADJUSTING AND CLEANING

A. Adjust toilet accessories for proper operation and verify that mechanisms function smoothly. Replace damaged or defective items.

B. Clean and polish all exposed surfaces after removing temporary labels and protective coatings.

**END OF SECTION**

**SECTION 12390**

**RESIDENTIAL CASEWORK AND CLOSET LAMINATES (KITCHEN CABINET)**

## PART I – GENERAL

### 1.1 SUMMARY

A. Extent of Kitchen Cabinet is indicated on the drawings.

B. Types of kitchen cabinet compartments include :
   1. Refer plan

C. Style of kitchen compartments include:
   1. Refer plan

D. Kitchen accessories, refer plan, refer manufacturer standard.
   1. Granite Countertop with Granite Splashboard.
   2.

**2.2 MATERIALS:**

2.3 GENERAL: Provide material that has been selected for surface flatness and smoothness. Exposed surfaces, which exhibit pitting, seam marks, stains, and discoloration, telegraphing of core material or other imperfections on finished units are not acceptable.

A. Intermediate Panel, pilasters and door: Refer plan

B. The panels using special techniques have an integral, decorative surface made of melamine impregnated sheets resistant to chemicals and scratches.

C. Hardware and Accessories: Manufacturer's standard design, heavy duty operating hardware and accessories of nylon coated stainless and polyamide cover with resistant to heat and chemicals and bacteria resistant nylon.

D. Each to



1.03 **DESIGN CRITERIA**

**A. Performance:**

1. Contract Speed:
   Within 5% under any loading condition in either direction

2. Floor-to-Floor Time:
   Measure from start of door closing at any to 3/4 open door, car level and stopped at next floor

**PART 2.00 - PRODUCTS**

**2.01 MACHINE ROOM EQUIPMENT**

A. General:
Provide equipment to fit space and structural conditions shown.

1. Identification:
Permanently number equipment with numerals 100mm high corresponding with elevator numbers.

2. Sound Control
Provide effective sound isolation material to isolate machines, motor generators or solid state drive units, from beams and building structure to prevent objectionable noise transmission to building rental spaces. As a minimum, provide a 3-layer neoprene vibration isolation pad with steel shims between

27.5 Kg/M and 22 Kg/M respectively.

2. Mounting:

Mount directly to building structure with suitable brackets and sliding rail clips; brackets to be mounted to top 20% of beam web or top flange near slab connection. Bracket to center of web of members without slabs on top including WF shaped divider beams.

B. **Stopping Devices:**

Provide with noiseless operation.

C. **Buffers:**

Provide blocking, supports inspection ladders and platforms as required to service buffers and equipment on car bottom.

D. **Platform:**

All structural steel construction except for 16mm plywood top flooring. Provide plat form isolation from car frame. Recess passenger elevator platforms 25mm below threshold for installation of marble flooring. Light duty formed sheet metal platform construction is not acceptable.

E. **Guide Shoes:**

Roller type with 3 or more sound reducing rollers, spring or hydraulically loaded, to provide continuos contact with guide rail surfaces. Car rollers; 350 RPM maximum; counterweight rollers; 1,00 RPM maximum.

F. **Car frame, Safety and Governor:**

1. Car frame:
Welded or bolted steel channel, construction. Where solid state motor drive is provided, isolate hitch plate or car sheave at car frame connections

PROPOSED GALERIES TOWER MANILA
NATIVIDAD LOPEZ ST. COR. CABRAL ST. MANILA

ASYA DESIGN PARTNER
GRAND TAIPAN LAND DEVELOPMENT INC.