DESIGNER NOTE:
TMS 602 TOLERANCES ARE GENERALLY FOR STRUCTURAL MASONRY AND NOT FOR MASONRY VENEER. COORDINATION IS REQUIRED BETWEEN THE SPECIFICAITON AND GENERAL NOTES.

DESIGNER NOTE:
HOT/COLD WEATHER PROCEDURES ARE OFTEN REQUIRED AS A SUBMITTAL ON PROJECTS.

DESIGNER NOTE:
CONTACT BDC OR LOCAL MASONRY ASSOCIATION FOR REPRESENTATIVE COMPRESSIVE STRENGTHS FOR PROJECT LOCATION.

DESIGNER NOTE:
ASTM C270 ALLOWS 3 TYPES OF CEMENT TO BE USED IN MORTAR. TMS 402/602 HAS RESTRICTIONS ON MASONRY CEMENT BASED ON SEISMIC DESIGN CATEGORY. CONTACT BDC FOR MORE INFORMATION.

DESIGNER NOTE:
GROUT COMPRESSIVE STRENGTH IS COMMONLY SPECIFIED TO MEET OR EXCEED F'M.

DESIGNER NOTE:
GROUT CERTIFICATION TRAINING IS OFFERED BY VARIOUS ORGANIZATIONS INCLUDING THE IMI AND MIM.

DESIGNER NOTE:
FEDERAL OSHA REQUIRES WALLS WITH HEIGHTS EXCEEDING 8'-0" TO BE BRACED UNTIL FINAL LATERAL SUPPORT IS ACHIEVED.

DESIGNER NOTE:
TMS REQUIRES THE DESIGNER TO SHOW THE TYPE AND LOCATION OF MOVEMENT JOINTS IN THE PROJECT DRAWINGS.

DESIGNER NOTE:
CMU-TEC-009-25 HAS ADDITIONAL INFORMATION ON HORIZONTAL JOINT REINFORCEMENT REQUIREMENTS.

DESIGNER NOTE:
MINIMUM QUALITY ASSURANCE LEVEL IS DETERMINED BASED ON TMS 402 TABLE 3.1 AND DEPENDENT ON RISK CATEGORY.

DESIGNER NOTE:
RECOMMENDATION BASED ON MASONRY STRENGTH GAIN RESEARCH CONDUCTED BY CMHA.

DESIGNER NOTE:
THE 2022 VERSION OF TMS 402/602 INCLUDES PROVISIONS FOR GFRP

DESIGNER NOTE:
VERIFY THAT REINFORCEMENT COVER IS ADEQUATE FOR FIRE-RATED WALLS IN ACCORDANCE WITH ACI/TMS 216.1

MASONRY

1. MASONRY CONSTRUCTION AND MATERIALS SHALL CONFORM TO THE MORE STRINGENT PROVISIONS OF CHAPTER 21 OF THE **2024 INTERNATIONAL BUILDING CODE** AND THE REQUIREMENTS OF THE **"SPECIFICATION FOR MASONRY STRUCTURES (TMS 602-22)"** PUBLISHED BY THE MASONRY SOCIETY, LONGMONT, COLORADO, EXCEPT AS MODIFIED BY THE REQUIREMENTS OF THESE CONTRACT DOCUMENTS.
2. CONTRACTOR SHALL PROVIDE NECESSARY LABOR, MATERIALS AND EQUIPMENT TO LAY MASONRY AS SHOWN OR SPECIFIED IN THESE CONSTRUCTION DOCUMENTS.
3. ALL WORK SHALL BE LAID TRUE TO A LINE, PLUMB AND LEVEL IN KEEPING WITH THE TOLERANCES GIVEN IN **"SPECIFICATIONS FOR MASONRY STRUCTURES (TMS 602-22)**.
4. EMPLOY HOT OR COLD WEATHER CONSTRUCTION PRACTICES AS DEFINED IN TMS 602 WHEN AMBIENT AIR TEMPERATURE EXCEEDS 100°F OR IS BELOW 40°F.
5. CONCRETE MASONRY UNITS SHALL CONFORM TO ASTM C90.
   A. THE MASONRY ASSEMBLY SHALL HAVE A **MINIMUM COMPRESSIVE STRENGTH (F'M) OF [2000 PSI] [2500 PSI] [3000 PSI]**.
   B. MASONRY ASSEMBLY COMPRESSIVE STRENGTH SHALL BE DEEMED TO COMPLY THROUGH THE USE OF MASONRY UNITS WITH A **NET AREA COMPRESSIVE STRENGTH OF [2000 PSI] [2500 PSI] [3000 PSI]** OR THROUGH MASONRY PRISM TESTING WITH PRIOR APPROVAL
6. MORTAR SHALL BE OF MATERIALS AND PROPORTIONED IN COMPLIANCE WITH THE PROPORTION SPECIFICATIONS OF ASTM C270 AND SHALL BE OF THE FOLLOWING TYPE BASED ON APPLICATION:
   A. TYPE S FOR MASONRY BELOW GRADE OR IN CONTACT WITH EARTH
   B. TYPE S FOR UNREINFORCED MASONRY ABOVE GRADE
   C. TYPE S FOR REINFORCED MASONRY ABOVE GRADE
   D. TYPE N FOR VENEER MASONRY
7. TOOL MORTAR JOINTS TO A CONCAVE PROFILE, USING A JOINTER LARGER THAN JOINT THICKNESS, ON EXPOSED INTERIOR FACE OF WALL AND EXTERIOR EXPOSED FACE WHEN MORTAR IS THUMBPRINT HARD. STRIKE MORTAR JOINTS FLUSH ON EXTERIOR (CAVITY) FACE OF BACKUP WYTHE.
8. SAND FOR MORTAR SHALL CONFORM TO ASTM C144 AND SHALL BE MEASURED IN LOOSE, DAMP CONDITION.
9. GROUT SHALL CONFORM TO THE PROPORTION REQUIREMENTS OF ASTM C476. GROUT SHALL HAVE A **MINIMUM COMPRESSIVE STRENGTH (F'G) OF [2000 PSI] [2500 PSI] [3000 PSI]** AND MEET OR EXCEED THE MASONRY ASSEMBLY COMPRESSIVE STRENGTH (F'M).
10. PROVIDE MATERIAL SUBMITTALS AND/OR TEST REPORTS SHOWING COMPLIANCE WITH REFERENCED STANDARDS.
11. ALL MASONRY WORK SHALL BE LAID IN RUNNING BOND UNLESS NOTED OTHERWISE.
12. **[ALL MASONRY WORK BELOW GRADE SHALL BE SOLID OR HAVE SOLID GROUTED CORES.]**
13. GROUT PLACEMENT AND CONSOLIDATION SHALL CONFORM TO SECTION 3.5 IN TMS 602.
14. ALL GROUT SHALL BE PLACED OR SUPERVISED BY MASON CONTRACTOR CERTIFIED IN GROUT PLACEMENT BY AN APPROVED ORGANIZATION.
15. ALL WALLS SHALL BE ADEQUATELY BRACED IN ACCORDANCE WITH THE "STANDARD PRACTICE FOR BRACING MASONRY WALLS UNDER CONSTRUCTION" (DECEMBER 2012) PUBLISHED BY THE MASON CONTRACTORS ASSOCIATION OF AMERICA.
16. ALL WALLS SHALL RECEIVE THE MINIMUM SPECIFIED VERTICAL REINFORCEMENT AT EACH SIDE OF OPENINGS, CONTROL JOINTS, AND ALL CORNERS UNLESS NOTED OTHERWISE.
17. CONTACT THE ENGINEER FOR LINTELS OVER OPENINGS NOT SHOWN IN THE PLANS.
18. **CONTROL JOINTS SHALL BE INSTALLED AS SHOWN IN THE PLANS AND PER THE FOLLOWING REQUIREMENTS:**
    a. **MAXIMUM JOINT SPACING SHALL BE SPECIFIED ON STRUCTURAL DRAWINGS.**
    b. **JOINTS SHALL BE CONSTRUCTED USING GROUTED FLANGED UNITS (FORMED PAPER CONTROL JOINT) OR WITH PREFORMED HARD RUBBER GASKETS IN SASH UNITS, UNLESS NOTED OTHERWISE.**
    c. **DO NOT PLACE CONTROL JOINTS AT LINTEL ENDS UNLESS SPECIFICALLY NOTED.**
19. GROUT 24" WIDE BY 24" DEEP AT ALL BEAM BEARING LOCATIONS AND AT OTHER POINT LOAD LOCATIONS EXCEPT GROUTED BEARING ZONE MAY TERMINATE AT A SOLID GROUTED BOND BEAM COURSE THAT IS LESS THAN 24" BELOW THE BEARING POINT.
20. MASONRY JOINTS SHALL BE FULLY FILLED FOR SOLID UNITS AND FACE SHELL BEDDED WITH HEAD JOINT DEPTH EQUAL TO THE FACE SHELL OR GREATER FOR HOLLOW UNITS UNLESS NOTED OTHERWISE.
21. PROVIDE LADDER TYPE JOINT REINFORCEMENT WITH (1) 9 GA DEFORMED SIDE ROD IN EACH FACE UNLESS NOTED OTHERWISE. INSTALL JOINT REINFORCEMENT AT 16" ON CENTER VERTICALLY FOR UNITS WITH A NOMINAL HEIGHT OF 8" AND AT 12" ON CENTER VERTICALLY FOR UNITS WITH A NOMINAL HEIGHT OF 4" AND FOR CONCRETE MASONRY VENEERS, UNLESS NOTED OTHERWISE.
22. MASONRY CONSTRUCTION CONFORMANCE WITH THE CONSTRUCTION DOCUMENTS SHALL BE VERIFIED IN ACCORDANCE WITH **"TABLE 4 – [LEVEL 1] [LEVEL 2] [LEVEL 3] QUALITY ASSURANCE"** IN **"SPECIFICATIONS FOR MASONRY STRUCTURES (TMS 602-22)** AND BE CONDUCTED BY AN ICC CERTIFIED STRUCTURAL MASONRY SPECIAL INSPECTOR, OR APPROVED EQUAL
23. THE CONTRACTOR SHALL ALLOW A 3 DAY CURING PERIOD OF MASONRY CONSTRUCTION PRIOR TO THE APPLICATION OF SURCHARGE LOADS.

MASONRY REINFORCEMENT

1. ALL STEEL REINFORCEMENT SHALL BE DEFORMED BARS CONFORMING TO ASTM A615 GRADE 60 UNLESS NOTED OTHERWISE.
2. TIE WIRE SHALL CONFORM TO ASTM A82.
3. HORIZONTAL JOINT REINFORCEMENT SHALL CONFORM WITH ASTM A82 AND BE HOT DIPPED GALVANIZED IN ACCORDANCE WITH ASTM A153.
4. DETAILING, BENDING AND PLACING OF STEEL REINFORCEMENT SHALL BE IN ACCORDANCE WITH THE PROVISIONS OF **"SPECIFICATION FOR MASONRY STRUCTURES" (TMS 602-22)**.
5. SUBMIT SHOP DRAWINGS INDICATING SIZE, LOCATION, AND DIMENSIONS OF REINFORCING STEEL FOR ALL REINFORCED MASONRY WALLS.
6. ALL STEEL REINFORCEMENT SHALL BE PLACED AND SUPPORTED AS NECESSARY TO MAINTAIN PROPER POSITION IN ACCORDANCE WITH **"SPECIFICATION FOR MASONRY STRUCTURES" (TMS 602-22)**.
7. ALL STEEL REINFORCEMENT MARKED OR SHOWN AS CONTINUOUS MAY BE SPLICED CONFORMING TO **"SPECIFICATION FOR MASONRY STRUCTURES" (TMS 602-22)**.
8. JOINT REINFORCEMENT SHALL BE LAPPED A MINIMUM OF 8".
9. USE PREFABRICATED JOINT REINFORCEMENT SECTIONS FOR INTERSECTING WALLS AND CORNERS, OR FOLLOW AN ESTABLISHED PROCEDURE FOR FIELD FABRICATING CORNERS.
10. ALL HORIZONTAL STEEL REINFORCEMENT SHALL BE CONTINUOUS AROUND CORNERS TO PROVIDE LAP LENGTHS IN ACCORDANCE WITH **"SPECIFICATION FOR MASONRY STRUCTURES" (TMS 602-22)** OR AS INDICATED IN THESE CONSTRUCTION DRAWINGS, UNLESS NOTED OTHERWISE.
11. CONTINUE ALL VERTICAL STEEL REINFORCEMENT FROM FOOTING TO BOND BEAM UNLESS NOTED OTHERWISE. WHERE TERMINATION OCCURS IN BOND BEAMS ENGAGE BOND BEAM STEEL WITH A STANDARD 90- OR 180-DEGREE HOOK.
12. SUPPORT REINFORCEMENT TO PREVENT DISPLACEMENT CAUSED BY CONSTRUCTION LOADS OR BY PLACEMENT OF GROUT OR MORTAR, BEYOND THE ALLOWABLE TOLERANCES IN ACCORDANCE WITH **"SPECIFICATION FOR MASONRY STRUCTURES" (TMS 602-22)**.
13. **DISCONTINUE ALL HORIZONTAL REINFORCEMENT AT CONTROL JOINTS EXCEPT AT DIAPHRAGM LEVELS UNLESS NOTED OTHERWISE.**
14. MASONRY REINFORCEMENT COVER:
    A. MASONRY FACE EXPOSED TO EARTH OR WEATHER, #6 BAR OR LARGER . . . . . 2"
    B. MASONRY FACE EXPOSED TO EARTH OR WEATHER, #5 BAR OR SMALLER . . . . . 1 1/2"
    C. MASONRY NOT EXPOSED TO EARTH OR WEATHER . . . . . 1 1/2"
    D. MASONRY JOINT REINFORCEMENT EXPOSED TO EARTH OR WEATHER . . . . 5/8"
    E. MASONRY JOINT REINFORCEMENT NOT EXPOSED TO EARTH OR WEATHER . . . . . 1/2"

MINIMUM TESTS (LEVEL 2)

VERIFICATION OF SLUMP FLOW AND VISUAL STABILITY INDEX (VSI) AS DELIVERED TO THE PROJECT SITE IN ACCORDANCE WITH ARTICLE 1.5 & 1.6.3 FOR SELF-CONSOLIDATING GROUT

VERIFICATION OF f'_m AND f_{MG}' IN ACCORDANCE WITH ARTICLE 1.4 B PRIOR TO CONSTRUCTION, EXCEPT WHERE SPECIFCALLY EXEMPTED BY THE CODE

VERIFY COMPLIANCE WITH THE APPROVED SUBMITTALS PRIOR TO CONSTRUCTION IN ACCORDANCE WITH ARTICLE 1.5

MINIMUM SPECIAL INSPECTION

INSPECTION TASK	FREQUENCY		REFERENCE	
	CONTINUOUS	PERIODIC	TMS 402	TMS 602
1. AS MASONRY CONSTRUCTION BEGINS, VERIFY THAT THE FOLLOWING ARE IN COMPLIANCE:				
A. PROPORTIONS OF SITE-PREPARED MORTAR		X		ART. 2.1 & 2.6 A & C
B. GRADE AND SIZE OF PRESTRESSING TENDONS AND ANCHORAGES		X		ART. 2.4 B & 2.4 M & N
C. GRADE, TYPE AND SIZE OF REINFORCEMENT, CONNECTORS, ANCHOR BOLTS		X		ART. 2.4 A, D, E, F, G, H, I, J, K, & L
D. PRESTRESSING TECHNIQUE		X		ART. 3.6 B
E. PROPERTIES OF THIN-BED MORTAR FOR AAC MASONRY	X[1]	X		ART. 2.1 C.1
F. SAMPLE PANEL CONSTRUCTION		X		ART. 1.6 D
2. PRIOR TO GROUTING, VERIFY THAT THE FOLLOWING ARE IN COMPLIANCE:				
A. GROUT SPACE		X		ART. 3.2 D & 3.2 F
B. PLACEMENT OF PRESTRESSING TENDONS AND ANCHORAGES		X	SEC. 10.8 & 10.9	ART. 3.6
C. PLACEMENT OF REINFORCEMENT, CONNECTORS, AND ANCHOR BOLTS		X	SEC. 6.1, 6.3.1, 6.3.6, & 6.3.7	ART. 3.2 E & 3.4
D. PROPORTIONS OF SITE-PREPARED GROUT AND PRESTRESSING GROUT FOR BONDED TENDONS		X		ART. 2.6 B & 2.4 M.1.b
3. VERIFY COMPLIANCE OF THE FOLLOWING DURING CONSTRUCTION:				
A. MATERIALS AND PROCEDURES WITH THE APPROVED SUBMITTALS		X		ART. 1.5
B. PLACEMENT OF MASONRY UNITS AND MORTAR JOINT CONSTRUCTION		X		ART. 3.3 B
C. SIZE AND LOCATION OF STRUCTURAL MEMBERS		X		ART. 3.3 G
D. TYPE, SIZE, AND LOCATION OF ANCHORS, INCLUDING OTHER DETAILS OF ANCHORAGE OF MASONRY TO STRUCTURAL MEMBERS, FRAMES, OR OTHER CONSTRUCTION		X	SEC. 1.2.1 (e), 6.2.1, & 6.3.1	
E. TYPE, SIZE, AND LOCATION OF VENEER TIES & MOVEMENT JOINTS		X[2]	SEC. 13.2	ART. 3.4 D
F. INSTALLATION OF ADHERED VENEER		X[2]	SEC. 13.3	ART. 3.3 D
G. WELDING OF REINFORCEMENT	X		SEC. 6.1.7.3	
H. PREPARATION, CONSTRUCTION, AND PROTECTION OF MASONRY DURING COLD WEATHER (TEMPERATURE BELOW 40 DEGREES) OR HOT WEATHER (TEMPERATURE ABOVE 90 DEGREES)		X		ART. 1.8 C & D
I. APPLICATION AND MEASUREMENT OF PRESTRESSING FORCE	X			ART. 3.6 B
J. PLACEMENT OF GROUT	X			ART. 3.5
K. PLACEMENT PRESTRESSING GROUT FOR BONDED TENDONS	X			ART. 3.6 C
L. PLACEMENT OF AAC MASONRY UNITS AND CONSTRUCTION OF THIN-BED MORTAR JOINTS	X[1]	X		ART. 3.3 B.8 & 3.3 G.1.b
4. OBSERVE PREPERATION OF GROUT SPECIMENS, MORTAR SPECIMENS, AND/OR PRISMS		X		ART. 1.4 B.2.a.3, B.2.b.3, B.2.c.3, B.3, & B.4

NOTES:
1. CONTINUOUS INSPECTION REQUIRED FOR THE FIRST 5000 SQUARE FEET OF AAC MASONRY, THEN PERIODIC AFTER THE FIRST 5000 SQUARE FEET.
2. PERIODIC INSPECTION OF VENEERS IS REQUIRED WHEN THE HEIGHT OF THE VENEER EXCEEDS 60 FT. ABOVE THE GRADE PLANE.

MINIMUM TESTS (LEVEL 3)

VERIFICATION OF SLUMP FLOW AND VISUAL STABILITY INDEX (VSI) AS DELIVERED TO THE PROJECT SITE IN ACCORDANCE WITH ARTICLE 1.5 & 1.6.3 FOR SELF-CONSOLIDATING GROUT

VERIFICATION OF f'_m AND f_{MG}' IN ACCORDANCE WITH ARTICLE 1.4 B PRIOR TO CONSTRUCTION, EXCEPT WHERE SPECIFCALLY EXEMPTED BY THE CODE

VERIFY COMPLIANCE WITH THE APPROVED SUBMITTALS PRIOR TO CONSTRUCTION IN ACCORDANCE WITH ARTICLE 1.5

DURING CONSTRUCTION, VERIFICATION OF f'_m AND f_{MG}' FOR EVERY 5,000 SQ. FT.

DURING CONSTRUCTION, VERIFICATION OF PROPORTIONS OF MATERIALS AS DELIVERED TO THE PROJECT SITE FOR PREMIXED OR PREBLENDED MORTAR, PRESTRESSING GROUT, AND GROUT OTHER THAN SELF-CONSOLIDATING GROUT.

MINIMUM SPECIAL INSPECTION

INSPECTION TASK	FREQUENCY		REFERENCE	
	CONTINUOUS	PERIODIC	TMS 402	TMS 602
1. AS MASONRY CONSTRUCTION BEGINS, VERIFY THAT THE FOLLOWING ARE IN COMPLIANCE:				
A. PROPORTIONS OF SITE-PREPARED MORTAR		X		ART. 2.1 & 2.6 A & C
B. GRADE AND SIZE OF PRESTRESSING TENDONS AND ANCHORAGES		X		ART. 2.4 B & 2.4 M & N
C. GRADE, TYPE AND SIZE OF REINFORCEMENT, CONNECTORS, ANCHOR BOLTS		X		ART. 2.4 A, D, E, F, G, H, I, J, K, & L
D. PRESTRESSING TECHNIQUE		X		ART. 3.6 B
E. PROPERTIES OF THIN-BED MORTAR FOR AAC MASONRY	X[1]	X		ART. 2.1 C.1
F. SAMPLE PANEL CONSTRUCTION		X		ART. 1.6 D
2. PRIOR TO GROUTING, VERIFY THAT THE FOLLOWING ARE IN COMPLIANCE:				
A. GROUT SPACE		X		ART. 3.2 D & 3.2 F
B. PLACEMENT OF PRESTRESSING TENDONS AND ANCHORAGES		X	SEC. 10.8 & 10.9	ART. 3.6
C. PLACEMENT OF REINFORCEMENT, CONNECTORS, AND ANCHOR BOLTS		X	SEC. 6.1, 6.3.1, 6.3.6, & 6.3.7	ART. 3.2 E & 3.4
D. PROPORTIONS OF SITE-PREPARED GROUT AND PRESTRESSING GROUT FOR BONDED TENDONS		X		ART. 2.6 B & 2.4 M.1.b
3. VERIFY COMPLIANCE OF THE FOLLOWING DURING CONSTRUCTION:				
A. MATERIALS AND PROCEDURES WITH THE APPROVED SUBMITTALS		X		ART. 1.5
B. PLACEMENT OF MASONRY UNITS AND MORTAR JOINT CONSTRUCTION		X		ART. 3.3 B
C. SIZE AND LOCATION OF STRUCTURAL MEMBERS		X		ART. 3.3 G
D. TYPE, SIZE, AND LOCATION OF ANCHORS, INCLUDING OTHER DETAILS OF ANCHORAGE OF MASONRY TO STRUCTURAL MEMBERS, FRAMES, OR OTHER CONSTRUCTION		X	SEC. 1.2.1 (e), 6.2.1, & 6.3.1	
E. TYPE, SIZE, AND LOCATION OF VENEER TIES & MOVEMENT JOINTS		X[2]	SEC. 13.2	ART. 3.4 D
F. INSTALLATION OF ADHERED VENEER		X[2]	SEC. 13.3	ART. 3.3 D
G. WELDING OF REINFORCEMENT	X		SEC. 6.1.7.3	
H. PREPARATION, CONSTRUCTION, AND PROTECTION OF MASONRY DURING COLD WEATHER (TEMPERATURE BELOW 40 DEGREES) OR HOT WEATHER (TEMPERATURE ABOVE 90 DEGREES)		X		ART. 1.8 C & D
I. APPLICATION AND MEASUREMENT OF PRESTRESSING FORCE	X			ART. 3.6 B
J. PLACEMENT OF GROUT	X			ART. 3.5
K. PLACEMENT PRESTRESSING GROUT FOR BONDED TENDONS	X			ART. 3.6 C
L. PLACEMENT OF AAC MASONRY UNITS AND CONSTRUCTION OF THIN-BED MORTAR JOINTS	X[1]	X		ART. 3.3 B.8 & 3.3 G.1.b
4. OBSERVE PREPERATION OF GROUT SPECIMENS, MORTAR SPECIMENS, AND/OR PRISMS		X		ART. 1.4 B.2.a.3, B.2.b.3, B.2.c.3, B.3, & B.4

NOTES:
1. CONTINUOUS INSPECTION REQUIRED FOR THE FIRST 5000 SQUARE FEET OF AAC MASONRY, THEN PERIODIC AFTER THE FIRST 5000 SQUARE FEET.
2. PERIODIC INSPECTION OF VENEERS IS REQUIRED WHEN THE HEIGHT OF THE VENEER EXCEEDS 60 FT. ABOVE THE GRADE PLANE.

1 MASONRY GENERAL NOTES
SCALE: 1/2" = 1'-0"

THE BEAUTY OF BLOCK DESIGN COLLECTIVE

MASONRY GENERAL NOTES (2022)